1276

Genus Pteroïs Oken

Pteroïs Oken, Isis, p. 1183, 1817.
(Les Ptéroïs Cuvier, Règne Animal,
vol. 2, p. 286, 1817. Type
Gasterosteus volitans Linnaeus.
Designated by Guichenot, Dict. pittor.
Hist. Nat., vol. 8, p. 390, 1839.)

Pseudomonopterus Klein, Miss. Pisc.,
vol. 5, p. 76, 1756. (Nonbinomial.
Type Gasterosteus volitans Linnaeus,
designated by Bleeker, Verh. Kon.
Akad. Wet. Amsterdam, vol. 16,
no. 2, p. 4, 1876.)

Pseudopterus Klein, Lener & Schauplatz,
vol. 3, p. 139, 1776. (~~Type~~
Pseudopterus qui Perca amboinensis
Klein = Gasterosteus volitans
Linnaeus, designated by Jordan
and Evermann, General of Fishes,
pt. 1, p. 40, 1917.)

Pteroleptus Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839. (Type Pteroleptus longicauda Swainson.

Macrochyrus Swainson, op. cit., p. 264. (Type Scorpaena miles Bennett.

Pteropterus Swainson, op. cit., p. 264. (Type Pteois radiata Cuvier.

Body elongately ovoid, compressed.
Head moderate or large.
Snout pointed, moderate.
Eye moderate, elevated or more
or less impinging on upper
profile and little premedian.
Mouth moderate, lower jaw
protruded. Maxillary extends
below front of eye, expanded
terminally. Teeth in jaws and
on vomer, none on palatines.
Opercle with spine. Lateral line
of head well-developed. Scales
moderate or small, cycloid or
ctenoid. Head with cirri or
flaps above. Dorsal fin greatly
elevated, with 12 or 13 long,
slender spines, sharp and bony
connected by low basal mem-
brane. Rays of soft dorsal
branched. Anal with 3 short
graduated spines and 6 to 8
branched rays, fin like soft

dorsal. Caudal round or truncate. Pectoral greatly elongated, with simple rays largely free, only connected by basal membrane, and fin reaching to or beyond caudal. Ventral with spine and 5 rays, moderate or long.

Striking fishes of moderate or large size, living in the coral reefs of the tropical Indo-Pacific. In coloration they are very contrasted and handsome, most of the species yellowish with black bands. They are dreaded by the fishermen on account of their venomous spines.

Analysis of Species

a.' Pteroïs. dorsal spines 13.

b.' Scales 95; caudal spotted: volitans.

b.² Scales 80; caudal without spots. russelii.

b.³ Scales 70.

c.' Caudal without spots. lunulata.

c.² Dorsal and caudal spotted. miles.

b.⁴ Scales 44 or 45. sphex.

a.² Pteropterus. dorsal spines 12; scales 45 to 54; long supraorbital tentacle.

d.' Dark vertical bands on caudal peduncle. antennata.

d.² Broad horizontal dark band on caudal peduncle. radiata.

Pteroïs volitans (Linnaeus).

(Gasterosteus volitans Linnaeus, Syst. Nat., ed. 10, pt. 1, p. 296, 1758 (type locality, Amboina); ed. 12, pt. 1, p. 491, 1766 (copied). — Houttuyn, Verh. Holland. Maatsch. Haarlem, vol. 20, p. 327, 1782 (Japan). — Bloch, Naturges. Ausland. Fische, vol. 9, p. 99, 1795 (Tranquebar). — Walbaum, Artedi Pisc., vol. 3, p. 450, 1792 (on Linnaeus).

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Scorpaena volitans Bloch, Naturg. Ausl. Fische, vol. 3, p. 18, pl. 184, 1787 (Amboina). — Bonnaterre, Tabl. Ichth., p. 70, 1788 (Amboina). — Gmelin, Syst. Nat. Linn., pt. 1, p. 1217, 1789 (Amboina; Japan). — Walbaum, Artedi Pisc., vol. 3, p. 379, 1792 (on Bloch). — Forster, Fauna Indica, p. 14, 1795. — Schneider, Syst. Ichth. Bloch, p. 193, 1801 (Coromandel). — Lacépède, Hist. Nat. Poiss., vol. 3, pp. 260, 289, 1802 (Japan; Amboina). (vol. 2, pl. 17, fig. 3, 1);

— Shaw and Nodder, Nat. Miscellany, vol. 18, pl. 768, 1807 (Indian Seas). — Bennett, Fishes of Ceylon, pl. 1, 1829. — Gray, Cat. Fishes of Gronow, p. 119, 1854 (Amboina).

Pteroïs volitans Cuvier, Hist. Nat. Poiss., vol. 4, p. 352, pl. 88, 1829 (Moluccas, Amboyna, Mauritius, Bourbon, Ceylon, Red Sea, Seychelles, Pondicherry) — Rüppell, Neue Wirbelth., Fische, p. 107, 1835 (Red Sea).

— Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839 (on Bloch and Cuvier). — Bleeker, Journ. Indian Archip., vol. 2, p. 633, 1848 (Bima, Sumbawa); Verh. Batavia. Genoot. (Perc.), vol. 22, p. 7, 1849 (Batavia, Bima, Banda); (Nal. Schth. Japan), vol. 25, p. 11, 1853 (reference); (Nal. Schth. Bengal), vol. 25, p. 36, 1853 (reference); Nat. Tijds. Ned. Indie, vol. 2, p. 226, 1851 (Banda, Neira); vol. 3, p. 235, 1852 (Amboina), p. 236 (Ternate), p. 237 (Wahai), p. 546

(Amboina); vol. 4, f. 92, 1853
(Amboina), f. 132 (Ternate);
vol. 5, f. 154, 1853 (Manado, Celebes),
f. 234 (Ceram), ff. 319, 320
(Amboina); vol. 6, f. 90, 1854
(Banda, Neira); vol. 7, f. 228, 1854
(Manado, Celebes); vol. 8, f. 306,
1855 (Batoe), f. 392 (Amboina);
vol. 9, f. 65, 1855 (Batu); f. 114
(Sumbawa), f. 259 (Siboga); f.
284 (Amoerang, Celebes); vol. 11,
f. 81, 1856 (Midden Java); vol. 12,
f. 213, 1856 (Nias), f. 230 (Batu);
Act. Soc. Sci. Ind. Neerl., vol. 1,
no. 3, f. 31, 1856 (Manado); vol. 1,
no. 5, f. 5, 1856 (Amboina); vol. 2,
no. 7, f. 3, 1857 (Amboina); vol. 3,
no. 4, f. 2, 1857-58 (Manado);
vol. 3, no. 9, f. 5, 1857-58 (Priaman);
Nat. Tijds. Ned. Indie, vol. 13,
f. 56, 1857 (Kajeli, Buru), f. 371
(Sangi); vol. 15, f. 159, 1858

(Prigi, Java); vol. 16, p. 29, 1858 (Amboina), p. 37 (Tjilatjap), p. 45 (Riouw), p. 209 (Batjan); Act. Soc. Sci. Ind. Neerl., vol. 5, no. 8, p. 1, 1858-59 (Tobariri, Celebes); vol. 8 (Sumatra), p. 10, 1859 (Priaman), pp. 12, 13 (Benculen), p. 14 (Tandjong); Nat. Tijds. Ned. Indië, vol. 18, p. 353, 1859 (Bawean); vol. 19, p. 330, 1859 (Patjitan, Java), p. 333 (Karangbolong, Java); vol. 20, p. 219, 1859-60 (Tandjon); vol. 22, p. 112, 1860 (Buru). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 122, 1860 (Cape of Good Hope, Madras, China, Amboina, Sydney, Cape Upstart).

— Day, Proc. Zool. Soc. London, f. 17, 1865 (Cochin, Malabar). — Playfair, Fishes of Zanzibar, f. 48, 1866 (Zanzibar). — Day, Fishes of Malabar, f. 39, 1865. — Schmeltz, Cat. Mus. Godeffroy, no. 3, f. 8, 1866 (Samoa); no. 4, f. 16, 1869 (Samoa). — Klunzinger, Verh. zool. bot. Ges. Wien, vol. 20, f. 806, 1870 (Red Sea). — Day, Fishes of India, pt. 1, f. 154, pl. 37, fig. 1, 1875.

— Günther, Journ. Mus. Godeffroy, vol. 2-3, pts. 5-6, f. 81, 1874 (Society Islands; Pelew Islands). — Macleay, Proc. Linn. Soc. New South Wales, vol. 1, f. 278, 1876 (Hall Sound, New Guinea). — Peters, Monatsb. Akad. Wiss. Berlin, f. 834, 1876 (1877) (New Britain).

— Macleay, Proc. Linn. Soc. New South Wales, vol. 7, p. 248, 1882 (New Guinea). — de Vis, Proc. Linn. Soc. New South Wales, vol. 8, p. 457, 1883 (New Britain). — Day, Fauna of British India, Fishes, vol. 2, p. 62, 1889.

— Pfeffer, Reise der Afrika, Fische, p. 10, 1893.

— Boulenger, Ann. Mag. Nat. Hist. London, ser. 6, vol. 20, p. 373, 1897 (Rotuma). — Ishikawa and Matsmura, Cat. Fish. Mus. Tokyo, p. 50, 1897.

— Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 99, 1901 (reference). — Gilchrist, Marine Investig. South Africa, vol. 1, p. 119, 1902 (reference).

— Jordan and Starks, Proc. U.S. Nat. Mus., vol. 27, p. 142, 1904 (Riu Kiu; Bonin Islands). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, pl. 5, 1905 (1906) (Apia). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, p. , 1906 (Bacon). — Regan, Ann. Natal Mus., p. 247, 1908 (Kosi Bay); Trans. Linn. Soc. London, vol. , p. 236, 1908 (Maldives; Cargados Carajos; in 20 to 30 fathoms). — Jordan and Richardson, Philippine Journ. Sci., ~~vol. II~~ , p. 52, 1910 (reference); — Weber, Siboga Exped., vol. 65, Fische, p. 496, 1913 (Banda).

— Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 315, 1911 (Jaluit). — Pellegrin, Bull. Mus. Hist. Nat., Paris, vol. 18, p. 206, 1912 (Port Sandwich, New Hebrides).

— Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 409, May 21, 1917 (reference). — Fowler, Copeia, No. 58, p. 65, June 18, 1918 (Philippines). — Von Bonde, Fisher. Marine Surv. South Africa, Rep. No. 3, Spec. Rep. No. 1, pl. 31, 1922 (1924) (South Africa). — Fowler, Bishop Mus. Bull., No. 22, p. 11, 1925 (Guam). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 912, Oct. 1927 (Algoa Bay, Natal, Zululand, Portuguese East Africa). — Whitley, Journ. Pan Pac. Res. Inst., vol. 2, No. 1, p. 8, Jan.- March 1927 (Tanna Island, New Hebrides). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 71, art. 10, p. 9, 1927 (Benkoelen, Sumatra). (Izuka and Matsuura), Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 127, 1920 (Ogasawarajima).

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— Whitley, Journ. Pan Pac. Res. Inst., vol. 3, no. 1, p. 12, Jan.-March 1928 (Santa Cruz Islands).
— Fowler, Mem. Bishop Mus., vol. 10, p. 292, 1928 (Jaluit, Apia, Rabaul, Kusaie, Ebon, Guam); vol. 11, no. 5, p. 349, 1931 (reference).
— Borodin, Bull. Vanderbilt Marine Mus., vol. 1, art. 3, p. 89, 1932 (Fiji). — Herre, Journ. Pan Pac. Res. Inst., vol. 8, no. 4, p. 12, Oct.-Dec. 1933 (Madang, New Guinea). — Fowler, Mem. Bishop Mus., vol. 11, no. 6, p. 430, 1934 (New Hebrides, Santa Cruz Islands, Banks Group, Solomons, Port Moresby). Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 483, 1934 (Durban; Umhlali rock pools).

1291

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Pseudomanopterus volitans Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, vol. 15, p. 266, 1863 (Ternate); Ned. Tijds. Dierk., vol. 1, p. 250, 1863 (Amahai, Ceram), p. 269 (Atapupu, Timor); Verslag. Kon. Akad. Wet. Amsterdam, vol. 16, p. 365, 1864 (Noussa-laut, Moluccas); Ned. Tijds. Dierk., vol. 3, p. 42, 1866 (Harouku); Verslag. Kon. Akad. Wet. Amsterdam, ser. 2, vol. 2, p. 291, 1868 (Rio, Bintang).

Pseudomanopterus (Pseudomanopterus) volitans Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 42, 1876 (Sumatra, Batu, Nias, Bintang, Pinang, Banka, Java, Bawean, Celebes, Sangi, Sumbawa, Timor, Letti, Ternate, Buru, Ceram, Amboyna, Nusa laut, Banda); Arch. Néerl. Sci. Nat., Harlem, vol. 13, p. 37, 1878 (New Guinea);

Pseudamonopterus (Pteroïs volitans Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 18, no. 3, p. 2, 1879 (Mauritius).

Pteroïs muricata Cuvier, Hist. Nat. Poiss., vol. 4, p. 363, 1829 (type locality, Red Sea; Bourbon).
— Rüppell, Neue Wirbelth., Fische, p. 107, 1835 (Red Sea).
— Kner, Reise Novara, Fische, p. 118, 1866 (Java).
— Day, Fishes of Malabar, p. 40, 1865.
— Bleeker, Verh. Batavia. Genoot., (Nat. Schth. Bengal), vol. 25, p. 36, 1853 (reference).

Pteroïs geniserra Cuvier, Hist. Nat. Poiss., vol. 4, p. 366, 1829 (type locality: "côte de Java"). Valenciennes, Voy. Ind. Orient, Belanger, Poiss., p. 353, pl. 1, fig. 2.

Pteroïs cristatus Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839. (on Bennett, Fishes of Ceylon, pl. 1, 1830).

1295

Depth 2 3/4 to 3 1/8; head 2 4/5 to 2 9/10, width 1/6 to 1 1/2. Snout 2 1/5 to 2 3/4 in head from snout tip; eye 4 1/6 to 3 4/5, 1 4/5 to 2 in snout, greater than interorbital in young. To 1 1/4 in interorbital with age; orbit 4 1/3 in head, 1 4/5 in snout; maxillary reaches to eye or to 1/3 in eye, extension 1 to 2 in eye, length 2 in head from snout tip; teeth finely villiform in bands in jaws, villiform in vomer; interorbital 3 1/5 to 4 3/4, deeply concave. Gill rakers 6+11, short, thick, less than gill filaments, 1 1/2 in gill filaments which 2 in eye. Pair of nasal spines, blunt pair of anterior supraorbital spines, 1 or 2 posterior supraorbital spines, posterior longer and followed

by pair of small coronal spines and high bony keel with fused occipital-nuchal spines; 2 small postocular spines followed by 2 large spines, both usually bidentate and finally smaller suprascapular spine; 2 broad blunt preorbital spine; suborbital stay with age broad coarsely dentate band fused with similar preorbital, 4 strong preopercle spines, upper 2 larger and with several denticles in front; opercle ends in broad spine.

Scales 64 to 96 + 4 to 6 along and close above lateral line; tubes 43 + 1 or 2 in lateral line; 11 to 14 scales above, 16 below; 12 obliquely on cheek to hind angle of suborbital stay; 14 predorsal. Small scales over greater part of

head except jaws, snout, maxillary and branchiostegal regions. Pair of short flaps at snout tip, one large one from each preorbital spine; 3 short flaps along lower edge of preopercle and long one usually from first latero-supraocular spine. Bases of caudal fin with small scales. Scales with 10 to 12 basal radiating striae.

D. XIII, 11, I, first spine 1 1/3 to 2 in total head length, sixth spine 2 1/6 to 2 1/3 in fish without caudal, third ray 1 1/8 to 1 1/4 in total head length; A. III, 7, I, third spine 1 2/5 to 1 5/6, third ray 1 to 1 1/8; caudal 2 2/3 in rest of fish, rounded behind and with median point; ventral spine 1 2/3 to 2 1/4 in head, fin 2 1/4

to 2 1/2 in fish without caudal; pectoral rays reach beyond caudal tip in young, 7, VII.

Pale brown, head and trunk with about 16 black vertical bands, alternating with as many lighter ones in intervening fold areas. On front part of head these radiate from eye and those on body extend upon basal parts of vertical fin, though soon fading out on soft dorsal and anal. Stripes on interorbital space narrow and longitudinal. Dorsal spines marked with broad blackish cross bands. Soft dorsal, anal and caudal with rays marked with 6 series of narrow dark brown or blackish cross bands. Pectoral blackish, rays with broad white cross bands and reflected on membranes at

base of fin at indistinct pale blotches; basal part of fin pale brown, like general body color, marked with deep brown bands running into the black membranes; inside base of pectoral blackish, with several paler bands and a few white spots. Ventral blackish, with several series of small white spots, in some specimens grayish with 7 series of large black blotches, some of intervening pale area with small white spots basally or subbasally. Iris yellow.

Red Sea, Zanzibar, Portuguese East Africa, Zululand, Natal, South Africa, Mauritius, Bourbon, Seychelles, Maldives, India, Ceylon, Siam, East Indies, Philippines, Riu Kiu, New South Wales, Melanesia, Micronesia and Polynesia.

1300

[1560.] Biri Channel. June 2, 1909.
Length 100 mm.

1446. D. 5361. Corregidor Light, S. 89° W., 7.2 miles (N. lat. 14°24'15", E. long. 120°41'30"), Manila Bay. Dn 12 fathoms. February 8, 1909. Length 158 mm.

17894. Cebu dock. September 5, 1909. Length 205 mm.

7711 [972]. Endeavour Strait, north west coast of Palawan. December 23, 1908. Length 247 mm.

19497. Manila market. December 12-18, 1909. Length 144 mm.

2236, 2237. D. 5396. Panalagan Point, Talagit ~~Light. Dn 137 fathoms. March~~ Island, S. 78° E., 4.5 miles (N. lat. 11°57', E. long. 124° 12'24"), between Samar and Masbate. Dn 137 fathoms. March 15, 1909. Length 205 & 212 mm. Very pale, and no spots on soft dorsal, anal and caudal.

19813. Port San Vicente.
November 18, 1908. Length 120 mm.

One example. Varadero Bay, Mindoro. July 23, 1908. Length 95 mm. Supraorbital tentacle long as head and first preorbital tentacle longer or ½ in head. Pectoral exceeds total length of fish. Ventral 1⅔ in fish without caudal. Ventral dark, rays black, with small white dots on rays.

17865 [1363]. Buang Bay, Talagit Island. March 15, 1909. Length 172 mm.

Two examples. Limbe Strait, Celebes. November 12, 1909. Length 185 to 250 mm.

17995. Limbe Strait, Celebes. November 10, 1909. Length 208 mm.

13845. Powati Harbor, Makyan Island. ~~December~~ November 28, 1909. Length 243 mm.

14495. Tomahu Island. December 12, 1909. Length 163 mm.

U. S. N. M., No. 35739. Simunyan River, Borneo. W. T. Hornaday. Length 180 mm.

U. S. N. M., No. 38292. Kubuhiva, Marquesas. Dr. W. H. Jones. Length 228 mm.

U. S. N. M., No. 44572. Indian Ocean. Dr. W. L. Abbott. Length 110 to 222 mm. Two examples.

U. S. N. M., No. 47864. Mary River, Australia. Australian Museum. Length 212 to 225 mm. Two examples.

U. S. N. M., No. 49331. Red Sea. M. Belotti. Length 146 mm.

U. S. N. M., No. 52334. Apia, Samoa. Bureau of Fisheries. Length 257 mm.

U. S. N. M., No. 55923. Bacon, Philippines. Bureau of Fisheries (3444). Length 174 mm. to end of broken caudal.

U. S. N. M., No. 57728. Amakusa Island. Capt. Hancock. Length 85 mm.

U. S. N. M., No. 66003. Jaluit, Marshalls. Albatross Collection. Length 273? mm.

U. S. N. M., No. 79268. Philippines. E. H. Taylor. Length 230 mm.

U. S. N. M., No. 87999. Sumatra. Lieut. H. C. Kellers. Length 124 mm.

A. N. S. P., one example. Zanzibar. Sir Charles Eliot. Length 108 mm.

A. N. S. P., five examples. Durban, Natal. 1932. H. W. Bell Marley. Length 90 to 204 mm.

A. N. S. P., one example. Umhlali rock pools, Natal. H. W. Bell Marley. Length 56 mm.

1305

Pteroïs russelii Bennett

Pteroïs russelii Bennett, Proc. Zool. Soc., London, vol. 1, p. 128, 1831 (Upper Coromandel); ~~Upper Coromandel~~ on Kodipungi Russell, Fishes of Coromandel, vol. 2, p. 25, pl. 133, 1803, type locality, Vizagapatam).

→ Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 8 (Sumatra), p. 14, 1859 (Tandjong); Nat. Tijds. Ned. Indië, vol. 20, p. 216, 1859-60 (Singapore), p. 219 (Tandjon), p. 449 (Singapore).

Pteroïs ruskelli

1306

— Weber, Siboga Exped., vol. 65, Fische, p. 496, 1913 (Haleyer).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 484, 1934 (Natal).

1307

Pteroïs russellii Day, Fishes of India, pt. 1, p. 152, pl. 36, fig. 5, 1875 (Madras); Fauna of British India, Fishes, vol. 2, p. 60, fig. 23, 1889.

Pteroleptus longicauda Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839 (on Kodpungi Russell, op. cit., pl. 133, 1802, type locality, Vizagapatam).

Pteroïs miles (not Bennett) Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, p. 1024, 1849 (1850) (part).

— Gilchrist and Thompson, Ann. South African Mus., vol. 6, pt. 2, p. 175, 1908 (part).

Pterois Isodipungi Bleeker, Nat. Tijds. Ned. Indië, vol. 3, p. (444) 450, 1852 (type locality, Banka); Batavia; Padang); Verh. Batavia. Genoott. (Nat. Schth. Bengal), vol. 25, p. 36, 1853 (reference); Nat. Tijds. Ned. Indië, vol. 6, p. 517, 1854 (Delaksan, west Sumatra); vol. 8, p. 345, 1855 (Tikoe, Sumatra); vol. 9, p. 284, 1855 (Amoerang, Celebes); vol. 11, p. 418, 1856 (Muntok, Banka); vol. 12, p. 213, 1856 (Nias), p. 230 (Batu); Act. Soc. Sci. Ind. Neerl., vol. 3, no. 9, p. 2, 1857-58 (Padang), p. 3 (Trussan), p. 5 (Siboga).

— Barnard, Ann. South African Mus.; vol. 21, pt. 2, p. 913, Oct. 1927 (Natal).

. Pseudomonopterus (Pterois) kodipungi Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 45, 1876 (Sumatra, Batu, Nias, Pinang:, Singapore, Banka, Java, Celebes).

Depth 2 4/5; head 2 4/5, width 1 2/5. Snout 2 3/5 in head from snout tip; eye 5, 2 in snout, 1 in interorbital; maxillary reaches 7/8 to eye, expansion 1 1/4 in eye, length 2 1/8 in head from snout tip; teeth in villeform bands in jaws, patch also on roof, none on palatines or tongue; interorbital 5, deeply concave. Gill rakers 6+1+2, 1 2/3 in gill filaments, which 1 1/4 in eye. Front nostril with fleshy flap and short spine, rear nostril with short spines along upper orbital margin, with 2 or 3 back from preorbital to supraoccipital, strong occipital ridge each end in 2 blunt spines posteriorly; preorbital with cluster of small spines,

anteriorly with long cutaneous flap and suborbital stay variously denticulate across cheeks; preopercle edge with 5 spines, with flap from first and lower ridge denticulate.

Scales 77+4 in lateral line close above and along course; tubes 32+1 in lateral line; 12 scales above lateral line, 17 below, 9 predorsal forward to occiput. Head largely scaly, except under surface and muzzle. Scales with 8 to 14 basal radiating striae; apical denticles very small or rudimentary, sometimes 6 to 8, usually absent; circuli fine.

D. XII, I, 11, I, eighth spine 1 1/8 in total head length, fifth ray 1 1/8; A. III, 8, I, third spine

2 1/5, third ray 1; caudal 2 2/3 in rest of fish, fin rounded; least depth of caudal peduncle 3 3/4 in total head length; ventral 1; pectoral nearly reaches caudal base or 2 1/4 in entire fish.

Generally pinkish or vinaceous. ~~Head~~ Head with blackish brown narrower bands transversely in intervals between each similar colored parallel dark line. On trunk and tail 14 blackish brown transverse bands, interspaces each with narrow dark parallel line. Iris gray, orbit invaded by dark bands of head. Vpinnus dorsal with dark spots or dark bands, reflected on base, less so on soft dorsal,

which with rest of paired fins uniformly pinkish, though several dark body bands invade from base of anal. Pectoral dark neutral gray, with small blackish spots on rays. Ventrals like pectorals.

Natal, India, Malaya, East Indies.

A. N. S. P., one example. Natal. September 9, 1929. H. W. Bell Marley. Length 260 mm.

1315

Pteroïs lunulata Schlegel

Pteroïs lunulata Schlegel, Fauna Japonica, Poiss., pts. 2-4, p. 45, pl. 19, 1843 (type locality, Nagasaki Bay). — Richardson, Ichth. China and Japan, p. 213, 1846 (Canton). — Bleeker, Verh. Batavia. Genoot. (Nat. Ichth. Japan), vol. 25, p. 11, 1853 (reference); (Nat. Ichth. Japan), vol. 26, p. 5, 1857 (Nagasaki); Act. Soc. Sci. Ind. Neerl., vol. 3, no. 3, p. 2, 1857-58 (Kioesio), p. 5 (Japan). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 124, 1860 (no locality).

— Playfair, Fishes of Zanzibar, p. 48, 1866 (Aden, Zanzibar).

— Steindachner, Sitzs. Ber. Akad. Wiss. Wien, math.-naturw. Kl., vol. 61, pt. 1, p. 561, 1870 (Singapore).

— Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 41, 1880 (Arafura Sea).

— Steindachner and Döderlein, Denkss. Akad. Wiss. Wien, math.-naturw. Kl., vol. 49, pt. 1, p. 199, 1885 (Tokyo). — Boulenger, Proc. Zool. Soc. London, p. 659, 1887 (Muscat).

— Ishikawa and Matsmura, Prelim. Cat. Fish. Inus. Tokyo, p. 50, 1897.

— Jordan and Snyder, Annot. Zool. Japan., vol. 3, p. 99, 1901 (reference).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. , p. 166, pl. 6, 1903 (Zanzibar); Journ. Acad. Nat. Sci. Philadelphia, ser. 2, vol. 12, p. 548, 1904 (Padang, Sumatra).

— Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 142, 1904 (Tokyo, Misaki, Yokohama, Wakanoura).

— Izuka and Matsuura, Cat. Zool. Spec. Tokyo Mus., Vertebr., p. 127, 1920 (Enoura, Suruga). — Anonymous, Illustr. Jap. Aquat. An., vol. 1, pl. 43, fig. 5, 1931 (Tokyo; Nagasaki).

Pseudomancopterus (Pterois) lumulatus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, No. 2, p. 47, 1876 (Japan; Singapore).

depth 3 1/5 to 3 1/4; head 2 7/8 to 2 7/8, width 2 1/10 to 2 1/2. Snout 2 1/3 to 2 1/2 in head from snout tip; eye 3 3/4 to 5 4/5, 1 1/2 to 2 3/4 in snout, greater than interorbital 1 1/3 in interorbital width 1 1/3 in eye; orbit 4 to 5 in head from snout tip, 2 in snout, 1 1/6 in interorbital; teeth finely villiform, in bands in jaws and on vomer; interorbital 4 3/5 to 5 1/3 in head from snout tip, deeply concave. Gill rakers 5+11, slender, finely asperous, 1 1/2 in gill filaments, which 2 in eye. Pair 1 small spines over front nostril, no or both abnormally (asperous); small spines sometimes over hind nostril; pair 1 small anterosupraorbital spines and 2 pairs of posterosupraorbitals, followed by pair of small coronal

spines and high keel with fused occipito-nuchal spines; 3 post-ocular spines, first small, second with prong in front; lower preorbital edge spinescent; suborbital stay with row of strong denticles; 3 preopercle spines, upper largest with 2 basal prongs in front; second preopercle spine with 3 or 4 denticles in front.

Scales 55 + 5 above and close along lateral line; tubular scales 24 in lateral line to caudal base; 9 or 10 scales above lateral line, 16 below, 8 predorsal forward to occipital spine; 8 obliquely down on cheek from eye to hind end of preorbital stay. Head largely scaly except maxillary, mandible and branchiostegal Region. Small scales on breast,

chest, prepectoral region and pectoral base. Scales little smaller on caudal base than on body. Filaments short, few and inconspicuous on head. Scales with 13 to 17 basal radiating striae; circuli fine, complete.

D. XIII, 10, I or II, I, fifth spine 1 to 1 1/8 in total head length, fourth ray 1 2/5 to 1 1/5 times head; A. III, 7, I, third spine 2 3/5 to 3 in total head length, third ray 1 to 1 2/5; caudal 1 to 2 in rest of fish, pointed behind; least depth of caudal peduncle 2 4/5 to 3 1/2 in total head length; pectoral 1 2/3 in fish without caudal (to 1 1/4 in total fish in young), rays I, 5, VII; ventral rays I, 5, length equals total head length (to 2 1/6 in

fish without caudal in young).

Very pale or light brown, whitish below. About 20 transverse dark brown bands alternately wider and narrower as each pale interspace with narrow dark parallel line or band; on head lines and bands radiate forward from eye, while those on front of head longitudinal. Some of bands extend on lower or under parts of head and body. Iris whitish. Fins all pale or whitish. Each dorsal spine with 5 or 6 blackish brown spots. Soft dorsal with few dark brown spots on basal part of fin. Caudal with few dark spots on upper and lower edges. Small scattered dark spots on anal. Pectoral whitish, with 10 blackish cross bands on longest rays. Ventral

whitish, with 8 or 9 rows of black spots. Aden, Zanzibar, Malaya, China, East Indies, Japan. A striking species, with spotted fins, the vertical fins not shown so in Bleeker's figure of Pseudo-monopterus (Pterois) lunulatus. Distinguished from Pteroïs volitans by its whitish ventrals, with 3 to 8 rows of small dark spots. Young examples with paired fins more slate or gray black with black markings.

2355. D. 5361. Corregidor Light, S. 89° W., 7.2 miles (N. lat. 14°24'15", E. long. 120°41'30"), Manila Bay. In 12 fathoms. February 8, 1909. Length 190 mm.

12103. Manila. June 11, 1908. Length 203 mm.

6978. Manila market. April 14, 1909. Length 177 mm.

19289. No locality. Rohanzi Collection. Length 158 mm.

2236, 2237. D. 5396. Panalangan Point, Talajit Island, S. 78° E., 4.5 miles (N. 11°57'; E. long. 124°12'24"), between Samar and Masbate. In 137 fathoms. March 15, 1909. Length 205 to 212 mm. Both very pale and without spots on soft dorsal, anal and caudal.

One example. Sebatek, British North Borneo. October 30, 1909. H. L. Adolphy Collection. Length 157 mm.

U. S. N. M., No. 22544. Awa, Japan.
Japanese Government. Length 291 mm.

U. S. N. M., No. 26246. Japan.
Prof. E. S. Morse. Length 60 to 143 mm.
Seventeen examples.

U. S. N. M., No. 51268. Japan.
D. S. Jordan and J. O. Snyder.
Length 160 mm.

U. S. N. M., No. 51281. Tokyo.
D. S. Jordan and J. O. Snyder. Length
300? mm.

U. S. N. M., No. 57653. Japan.
P. L. Jouy. Length 239 to 310 mm.
Two examples.

U. S. N. M., No. 57654. Japan.
P. L. Jouy. Length 78 to 195 mm.
Three examples.

U. S. N. M., No. 59707. Urado, Japan.
H. M. Smith. Length 106 mm.

U. S. N. M., No. 59708. Kochi, Japan.
H. M. Smith. Length 78? mm.
In poor preservation.

U. S. N. M., No. 71457. Shimizu, Japan. Bureau of Fisheries. Length 67 to 88 mm. Three examples.

U. S. N. M., No. 74792. Yawata-hama, Izo, Japan. Mahabe Collection. Length 78 mm.

A. N. S. P., one example. Padang, Sumatra. A. C. Harrison and F. L. Hiller. Length 163 mm. Depth 3 1/6; head 2 3/4. Snout 2 2/3 in head; eye 4 2/5; maxillary 2 1/8; interorbital 5 2/5. Gill rakers 3+11, short, thick. Small pair of nasal spines. Anterior cutaneous supraorbital flap small. Scales 64+ along and above lateral line; 24 below to middle of belly. D. XIII, I, 11; A. III, 8.

Pterois miles (Bennett)

Scorpaena miles Bennett, Fishes of Ceylon, p. 9, pl. 9, 1828 (type locality, Ceylon).

Macrochynus miles Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839 (on Bennett).

— Day, Fishes of Malabar, p. 40, 1865; Fishes of India, pt. 1, p. 153, pl. 37, fig. 2, 1875 (Madras).

Pterois miles Günther, Cat. Fish. Brit. Mus., vol. 2, p. 125, 1860 (Red Sea), p. 520 (Indian Ocean).

— Boulenger, Proc. Zool. Soc. London, p. 659, 1887 (Muscat).

— Day, Fauna of British India, Fishes, vol. 2, p. 61, 1889.

— Regan, Ann. Natal Mus., vol. , p. 247, 1908 (Scottsburgh, Natal).

— Gilchrist and Thompson, Ann. South African Mus., vol. 6, pt. 2, p. 175, 1908–11 (Natal); Ann.

(1327)

Durban Mus., vol. 1, pt. 4, p. 409, May 21, 1917 (reference).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 483, 1934 (Durban coast).

1326

depth 3; head (2 7/8; width 1 7/8.
Rostrum 2 3/5 in head; eye 5 1/2, 2
in rostrum, 1 in interorbital;
supplementary rostral eye 1/4,
separated at 1/4 side eye, length 2 1/4
in head; interorbital 1 1/2;
longest ventral fin ray 5 + 11, caudal lobe
broken. Pectoral spiral filamentous 1/2 eye.
Scales 72 + 4 obscure
in lateral line; tubercles
32 + 2 in lateral line; 12 scales
above, 16 below, 7 predorsal
forward to occiput; 12 across
occiput checks. Scales with 7 to 13
radiating striae, circuli
very fine.
D. XII, I, 15, ±, first spine equal
head, fourth ray 1 3/5; A. III, 6, ±,
third spine 3 1/4, third ray 3 1/4;
caudal 1 3/5, rounded behind;
least depth of caudal peduncle
4 1/8; ventral 1 1/8; pectoral 2 1/4 in

fish without caudal.

Whitish, with blackish brown cross bands, narrow and close on front of head, broader one through eye and down over cheeks, ½ over occipital region and 8 broad ones on body, with 3 narrow, parallel ones in each interspace. Iris grayish. Dorsals whitish, each fin with 1 to 4 broad blackish bars and soft fin with scattered black dots in rays. Anal and caudal like soft dorsal. Paired fins largely neutral black, barred broadly with blackish, though pectoral rays more or less whitish.

Arabia, Natal, India, Ceylon.

1330

C. H. V. P., one example. Durban coast, Natal. 1929. H. W. Bell Marley. Length 268 mm.

1331

Pterois sphex Jordan and Evermann

Pterois sphex Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, p. 201, 1902 (1903) (type locality, Honolulu); vol. 23, pt. 1, p. 464, fig. 203, 1903 (1905) (type). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, 1905 (1906) (reference).

— Fowler, Bishop Mus. Bull., No. 22, p. 27, 1925 (Honolulu); Mem. Bishop Mus., vol. 10, p. 294, pl. 35a, 1928 (Honolulu; type).

depth 2 3/4 to 2 4/5; head 2 1/4 to 2 3/5, width 1 4/5 to 1 5/6. Snout 3 to 3 7/8 in head from snout tip; eye 3 7/8 to 4 1/3, 1 1/6 to 1 2/3 in snout, greater than interorbital; maxillary reaches to or 1/4 in eye, expansion 1 1/2 to 1 2/3 in eye, length 2 1/4 to 2 1/3 in head from snout tip; teeth fine, in moderately wide villiform bands in jaws and on vomer, none on palatines or tongue; interorbital 4 1/3 to 4 4/5, deeply concave. Gill rakers 5+12, broad tubercles, 1 1/2 in gill filaments, which 2 7/8 in eye. Pair of small nasal scales 40 to 45+4 in lateral line; tubes 24 or 25+1 in lateral line; 8 or 9 scales above lateral line; ~~to soft dorsal origin, 14 below, to or 17 predorsal spines~~; supra-ocular edge serrate, with small

antero-supraorbital, medio-supraorbital and postero-supraorbital little enlarged, pair of moderate coronals, and fused occipito-nuchals on rather elevated keel, occipital portion with 4 or 5 denticles; upper postocular edge serrate, then long keel with 6 denticles placed over preopercle, and finally one also with 6 denticles over opercle; long supracapular ridge with 4 wide-set denticles; preorbital with 2 broadly cuneate points, posterior larger and with few denticles; suborbital stay with serrated ridge, continued forward across preorbital; 5 preopercle spines; opercle spine inconspicuous; small humeral spine.

Scales 40 to 45 + 4 in lateral line; tubes 24 or 25 + 1 in lateral line; 8 or 9 scales above lateral to soft dorsal origin, 14 below, 6 or 7 predorsal scales forward to occipital spine; 4 postocular. Head scaly, except muzzle, interorbital, ~~and~~ maxillary, and branchiostegal region. Scales small on chest, breast, prepectoral region, pectoral base and belly. Short nasal flap; small flap on upper part of eye, another over eye and one at hind preorbital spine, also 2 on lower preopercle edge. Scales with 9 to 11 basal radiating striae, edge scalloped; apical denticles 35 to 38, with 2 to 3 transverse series; circuli fine.

D. $\underline{\underline{\text{XIII}}}$, 10, $\underline{\underline{\text{I}}}$, fifth spine 1 1/3 to

1 2/5 in total head length, fifth ray 1 3/4 to 1 7/8; I, III, 6, I, third spine 2 3/5 to 2 3/4, second ray 1 1/2 to 1 3/4; caudal 1 1/3 to 1 1/2, convex behind; ventral 1 1/8 to 1 1/5; pectoral 1 3/4 in combined head and body; rays 16, all simple.

Pale brown generally, whitish below. On head 4 transverse vertical seal-brown bands, second crossing eye and widening at preopercle angle and down to prepectoral; first band from lower eye edge. On trunk and tail 6 broad vertical seal brown bands, interspaces each at least on back; all reflected on bases of dorsals and anals. Vertical fins whitish, spotted with brown. Paired fins whitish, spotted with brown. Paired fins whitish, finely barred transversely with blackish only

lower margin on part of pectoral whitish.

Hawaiian Islands.

U. S. N. M., No. 50650. Honolulu. Bureau of Fisheries (05030). Length 152 mm. Type.

1337

Pterois antennata (Bloch)

Scorpaena antennata Bloch, Naturg. Ausland. Fische, pt. 3, p. 21, pl. 185, 1787 (no type locality = likely East Indies). — Bonnaterre, Tabl. Ichth., p. 70, pl. 88, fig. 370, 1788 (Amboina). — Gmelin, Syst. Nat. Linn., pt. 1, p. 1219, 1789 (Amboina). — Walbaum, Artedi Pisc., vol. 3, p. 381, 1792 (copied Bloch). — Forster, Fauna Indica, p. 14, 1795. — Schneider, Syst. Ichth. Bloch, p. 193, 1801 (Coromandel). — Lacépède, Hist. Nat. Poiss., vol. 3, pp. 260, 287, 1802 (Amboina).

1338

Pteroïs antennata Cuvier, Hist. Nat. Poiss., vol. 4, p. 265, 1828 (type locality given as Waigiu). — Lesson, Voy. Coquille, Zool., vol. 2, pt. 1, p. 212, 1830 (Offack Bay, Waigiu).

— Bleeker, Nat. Tijds. Ned. Indië, vol. 5, p. (68) 72, 1853 (Lawajong, Solor); vol. 2, p. 94, 1856 (Banda); vol. 12, p. 193, 1856 (Ternate); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 5, p. 5, 1856 (Amboina); vol. 2, no. 7, p. 3, 1857 (Amboina); Nat. Tijds. Ned. Indië, vol. 13, p. 56, 1857 (Kajeli, Buru), p. 479 (Prigi, Java); Act. Soc. Sci. Ind. Neerl., vol. 3, no. 4, p. 2, 1857–58 (Manado); Nat. Tijds. Ned. Indië, vol. 15, p. 199, 1858 (Goram); vol. 16, p. 29, 1858 (Amboina);

Acct. Soc. Sci. Ind. Neerl., vol. 8. (Sumatra), p. 14, 1859 (Priaman); Nat. Tijds. Ned. Indie, vol. 20, p. 198, 1859-60 (Priaman). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 124, 1860 (Cochinchina; China; Amboyna; Pearl Islands). — Gruchenot, Notes Ile Réunion, vol. 2, p. 25, 1862. — Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, vol. 14, p. 97, 1862 (Ternate); vol. 15, p. 20, 1863 (Hitu, Amboina). — Jouan, Mém. Soc. Sci. Nat. Cherbourg, vol. 9, p. 111, 1863 (New Caledonia).

— Schmeltz, Cat. Mus. Godeffroy, No. 6, p. 13, 1877 (Fatuna); No. 7, p. 43, 1879 (Fatuna).

— Boulenger, Proc. Zool. Soc. London, p. 239, 1889 (Muscat).

— Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 315, 1911 (Mabala, Paumotus).
— Weber, Siboga Exped., vol. 65, Fische, p. 497, 1913 (Sulu, Celebes, Gisser, Saleyer, Amboina, Banda, Sumbawa). — Izuka and Matsuura, Cat. Zool. & pec. Tokyo Mus., Vertebr., p. 128, 1920 (Ogasawarajima).

— Fowler and Bean, Proc. U. S. Nat. Mus., vol. 71, art. 10, p. 15, 1927 (Tahiti). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 288, 1927 (Calapan); Bishop Mus. Bull., no. 38, p. 21, 1927 (Marquesas); Mem. Bishop Mus., vol. 10, p. 292, 1928 (Guam, Mabatea, Ebon); vol. 11, no. 5, p. 349, 1931 (reference).

— Duncker and Mohr, Mitt. naturh. Mus. Hamburg, vol. 44, p. 69, 1931 (Frederick Wilhelm Harbor, New Guinea; St. Matthias, Ebalin; Rein Bay, north east New Pomerania). — Herre, Journ. Pan Pac. Res. Inst., vol. 6, no. 4, p. 18, Oct.-Dec. 1931 (Jenibuli, Solomons). — Whitley, Rec. Austral. Mus., vol. 19, p. 95, 1933 (Western Australia). — Fowler, Mem. Bishop Mus., vol. 11, no. 6, p. 430, fig. 4, 1934 (Admiralty Islands; New Guinea). — Herre, Fisher Philippine Exped., p. 65, 1931 (1934) (Dumaguette).

Pteroïs antennatus Fowler, Bishop Inst. Bull., no. 22, p. 11, 1925 (Guam).

Pseudomanopterus antennatus Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, vol. 16, p. 368, 1864 (Aru; Moluccas).

Pseudomanopterus (Pteroïs) antennatus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 48, 1876 (Sumatra, Java, Celebes, Solor, Ternate, Buru, Ceram, Amboina, Goram, Banda, Aru, Waigiu); Arch. Néerl. Sci. Nat., Harlem, vol. 13, p. 37, 1878 (New Guinea); Atlas Ichth. Ind. Neerl., vol. 9, ~~1877~~ → pl. 413 ( ), fig. 5, 1877.

depth 2 1/3 to 3; head 2 1/2 to 2 3/5, width 1 3/5 to 1 7/8. Rostrum 2 2/5 to 2 1/4 in head from rostral tip; eye 3 to 4 2/5, 1 2/5 to 1 1/2 in rostrum, little greater than rostrum to ground, greater than interorbital (increasing to subequal with age); maxillary reaches 1/4 to 1/3 in eye, extension 1 1/8 to 1 3/4 in eye, length 2 1/10 to 2 2/5 in head from rostral tip; teeth minute, villiform, in bands on jaws, on vomer and palatines, none on tongue; interorbital 4 to 5, deeply concave, with tentacle. Gill rakers 5 + 11, slender, short, 1/2 of filaments, which 2 4/5 in eye. Pair of nasal pores; pair of supraorbital pores; 2 pairs of preoral + supraorbital pores, each of anterior pair of

several denticles; double pair of coronal spines; occipital-nuchal spines fused on heel, edge with 5 or 6 denticles; supero-post-orbital edge with 5 or 6 denticles, continuous with heel, of 5 or 6 denticles over preopercle and heel over opercle with 2 or 3 denticles; suprascapular heel with 3 or 4 denticles; preorbital with 2 denticles on its hind edge, close, directed back; suborbital stay with 2 rows of denticles, continuous with ridge on pre-orbital, which also has an upper parallel short ridge with 2 or 3 spines; 3 preopercular spines, upper 2 little longer, lower broad.

Scales 42 to 49 + 3 to 5 above and close along lateral line; pores 24 to 28 + 1 or 2 in

lateral line; 9 or 10 scales above lateral line, 12 to 14 below, 6 predorsal, 2 postocular. Scales small on breast, chest, prepectoral, predorsal, paired fins and caudal base. Cheeks, postocular, opercle and top of head scaly, rest naked. Short nasal flap about long as pupil; supraorbital tentacle 1 1/4 to 2 1/4 times orbit; rather broad flap at lower preorbital and 2 on lower preopercle edge. Scales with 9 to 12 basal radiating striae; apical denticles 26 to 37, rather weak, often absent from side of abdominal scales; circuli fine.

D. $\underline{\underline{XII}}$, 11, $\underline{\underline{I}}$, longest spines fifth to ninth, membranes deeply cleft until only basal 1 3/4 to 2 1/5 in fish without

caudal; fifth dorsal ray 1 1/4 to 1 3/5 in total head length; A. III, 6, I or 7, I, third spine 2 1/2 to 2 3/5, third ray 1 1/5 to 1 1/3; caudal 1 1/8 to 1 1/4, rounded behind; least depth of caudal peduncle 3 to 4 1/4; pectoral with upper rays extended, little beyond caudal tip, rays all deeply cleft, membranes only extend beyond basal 2/5 of fin, rays 16, all simple; ventral 2 to 2 1/2 in fish without caudal, spine 2 1/3 to 3 in fin, rays I, 5.

Pale brownish, more or less whitish below. Broad blackish brown band, about wide as pupil from supraocular flap to subopercle, followed by postocular dusky brown band,

narrowing on opercle with equally broad remaining band of head from parietals to lower part of opercle. On trunk 8 broad, deep brown transverse bands, only first narrow and down on opercle flap, though posterior ones all inclined forward; between each dark area narrower paler band also in turn separated by brown line, mostly faded out below. Dorsal spines broadly barred with dusky brown. Vft dorsal, anal and caudal with each ray finely spotted with blackish, though dark body bands reflected on bases. Pectoral with membranes dusky terminally and spotted with blackish, fin pale basally and broad parietal band

continued across from head,
besides 2 dusky transverse
lines. Ventral membranes
dusky, with blackish basally.
, Arabia, Mauritius, Bourbon,
East Indies, Philippines, Indo
China, China, Western Australia,
Melanesia, Micronesia, Polynesia.

17434, 19643. Bulan Island, Samales Group. September 13, 1909. Length 111 to 150 mm.

15819. Butauanan Island, east coast of Luzon. June 13, 1909. Length 168 mm.

4422. D. 5557. Cabalian Point, N. 70° W., 5.2 miles (N. lat. 5° 51' 30", E. long. 121° 1' 0"), Jolo Island and vicinity. 9 m 13 fathoms. September 18, 1909. Length 30 mm.

7132. Inamucan Bay, Mindanao. August 8, 1909. Length 92 mm.

13334. Langao Point, Luzon. June 24, 1909. Length 127 mm.

12245. Limpinigan Island. September 11, 1909. Length 68 mm.

1334]. Lode Bay, Dertacado Island. March 13, 1909. Length 162 mm.

8911. Mabul Island. September 29, 1909. Length 173 mm.

11241. Mactan Island, Cebu.
March 25, 1909. Length 138 mm.

4440. D. 5163. Observation Island, N. 79° W., 6.70 miles (N. lat. 4° 59' 10", E. 119° 51'), Sulu Archipelago. In 28 fathoms. February 24, 1908. Length 88 mm.

[11867]. Pagapas Bay, Luzon. February 20, 1909. Length 84 mm.

21557. Pilas Island. September 12, 1909. Length 168 mm.

10535. Polloc, Mindanao. May 22, 1908. Length 112 mm.

6133. Puerta Princessa, Palawan. April 5, 1909. Length 118 mm.

12670 to 12672. San Miguel Island, Tabaco Bay. June 4, 1909. Length 118 to 173 mm.

18905. Tubnalutan Island. September 9, 1909. Length 110 mm.

8683. Tutu Bay, Jolo Island. September 19, 1909. Length 106 mm.

13451. Basa Reef, Gulf of Boni, Celebes, Dutch East Indies. December 17, 1909. Length 98 mm. 4 examples. Birdbirahan Island, off Borneo. December 1909. Length 149 to 190 mm.

17864. Buang Bay, Talaut Island. March 15, 1909. Length 140 mm.

21445. Maitara Island. November 26, 1909. Length 115 mm.

21126. Cape Kait, Libani Bay, Celebes. December 29, 1909. Length 89 mm.

13844. Powatik Harbor, Mahoyan Island. November 28, 1909. Length 106 to 148 mm. Two examples.

U. S. N. M., No. 66001. Makatea, Paumotus. Albatross Collection (05931). 1899-1900. Length 84 mm.

U. S. N. M., No. 87646. Tahiti. J. M. Clements. Length 67 to 122 mm. Two examples.

Pteroïs radiata Cuvier

Pteroïs radiata Cuvier, Hist. Nat. Poiss., vol. 4, p. 369, 1828 (type locality, Tahiti).

— Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 81, pl. 36, fig. A, 1874 (Society Islands, Samoa, Rarotonga, Kingsmills, Samoa).

— Schmeltz, Cat. Mus. Godeffroy, no. 6, p. 13, 1877 (Fatuna), no. 7, p. 43, 1879 (South Sea Islands).

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, p. 522, 1900 (Tahiti); p. 326, 1901 (Thornton Island). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, 1905 (1906) (Samoa). — Kendall and Goldsborough, Mem. Mus. Comp. Zool., vol. 26, p. 315, 1911 (Fakarava).

— Fowler, Bishop Mus. Bull., No. 22, p. 37, 1925 (Tahiti); No. 38, p. 21, 1927 (Washington; Howland Island); Mem. Bishop Mus., vol. 10, p. 293, 1928 (Oahu; Society Islands; Apiang; Ebon; Tahiti; Thornton Island; Raraka; Fakarava; Makatea; Raiatea; Honolulu).

— Pietschmann, Bishop Inst. Bull., No. 73, p. 17, 1930 (Papara, Tahiti). — Fowler, op. cit., vol. 11, No. 5, p. 349, 1931 (reference). — Herre, Journ. Pan Pac. Res. Inst., vol. 7, No. 1, p. 5, Jan. - March 1932 (Tahiti). — Fowler, op. cit., vol. 11, No. 6, p. 430, 1934 (Vaitupu, Raiatea).

Scorpaena radiata (Parkinson) Cuvier, Hist. Nat. Poiss., vol. 4, p. 369, 1829 (name in text).

Pterois cincta (Günther, Cat. Fish. Brit. Mus., vol. 2, p. 125, 1860 (Samoa). — Schmeltz, Cat. Mus. Godeffroy, no. 3, p. 8, 1866 (Samoa); no. 4, p. 16, 1869 (Viti Islands; Samoa); no. 5, p. 25, 1874 (Samoa; Viti Islands; Tonga; Tahiti). — Pöhl, Cat. Mus. Godeffroy, no. 9, p. 29, 1884 (Samoa). — Borodin, Bull. Vanderbilt Mus., no. 1, art. 3, p. 80, 1932 (Venus Point Reef, Tahiti).

1355

Pteroïs vittata Lauvage, Nouv. Archiv hist. Paris, p. 135, 1878 (type locality, Nukahiva, Marquesas Islands). = Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, 1905 (1906) (reference).

Pteroïs (Pseudamonopterus) vittata Lauvage, Nouv. Archiv hist. Hist. Nat., Paris, ser. 2, vol. 1, p. 135, pl. 1, fig. 10, 1878 (type locality, Nukahiva, Marquesas Islands).

Pteroïs antennata (not Bloch) Seale, Occas. Pap. Bishop Mus., vol. 4, no. 1, p. 83, 1906 (Raiatea, Mahatea, Tahiti).

Depth 2 2/3 to 3; head 2 1/3 to 2 5/6, width 1 1/3 to 1 1/2. Snout 3 to 3 2/3 in head from snout tip; eye 3 to 4, 1 to 1 1/6 in snout, greater than interorbital; maxillary reaches 2/3 to 1 in eye, expansion 1 2/3 to 1 7/8 in eye, length 2 1/3 to 3 in head from snout tip; teeth in villiform bands in jaws and on vomer, none on palatines; interorbital 4 1/3 to 6, deeply concave. Gill rakers 5 + 10 to 13, clavate, half of gill filaments, which 2 to 2 1/4 in eye. No nuchal spines; small antero-supraorbital spine, several rough small postero-supra-orbital denticles, pair of small coronal spines and rather low keel with fused occipito-nuchal spines; denticulate postorbital

ridge formed of 3 elements and finally large supracapular keels with several denticles; preorbital and suborbital stay rough denticulate band; preorbital with obtuse denti-culate edge; preopercle edge with 5 obtuse spines, upper largest, sometimes few additional denticles. ~~Total~~.

Scales 45 to 47 + 2 or 3 in lateral line; tubular scales 24 to 30 + 1 or 2 in lateral line; 6 to 9 scales above lateral line, 14 to 16 below, 4 or 5 predorsal. Nasal flap 1 4/5 to 2 in eye; supraorbital flap 2 4/5 to 3 in head; each preorbital with short filament, posterior longer; 3 lower preopercle spines each with short flap. Scales with

6 to 14 basal radiating striae and 7 to 9 marginal auxiliaries; apical denticles 7 to 50; circuli fine.

D. XII, 11, I or 12, I, fifth spine 1 7/8 to 2 in combined head and body, fifth ray 1 1/5 in total head length; A. III, 6, I, third spine 2 to 2 2/3, in head, third ray 1 1/5 to 1 2/5; caudal 1 1/4 to 1 7/8, rounded behind; pectoral 1 1/6 in fish without caudal, rays 15 or 16, all simple; ventral rays I, 5, fin 2 1/8 to 2 1/4 in head.

Brown generally. Muzzle pale. Broad brown band from lower hind eye edge back to lower base of pectoral; another from predorsal down and joining one from eye to pectoral base; third from front of

spinous dorsal down and little inclined until behind pectoral base; fourth to eighth transversely on trunk and tail; all bordered with narrow gray white line, which on body broader and with narrow, median, parallel, dark line. Horizontal, broad, median, dark band on caudal peduncle, bordered above and below narrowly with whitish line. Supraorbital flap with black and white spots. Paired fins medianly blackish, outer rays grayish white.

Red Sea, East Africa, Andamans, Micronesia, Polynesia, Hawaii.

Ad. U. S. N. M., No. 49315. Red Sea. M. Belotti. Length 168 mm.

Ex. U. S. N. M., No. 52538. Apia, Samoa. Bureau of Fisheries. Length 103 mm.

Ex. U. S. N. M., No. 66002. Fakarava, Paumotus. October 11, 1899. Albatross Collection. Length 106 mm.

Ex. U. S. N. M., No. 83252. Raraka. Wilkes Exploring Expedition. Length 70 mm., end of tail damaged.

Genus Eboria Jordan and Starks

Eboria Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 145, 1904. (Type Pterois bleekeri Steindachner, monotypic.)

differs from Pterois chiefly in its shorter pectoral, which barely reaches caudal base, and in which the rays are united by membrane nearly to their tips. From Brachyrus Dendrochirus, a genus agreeing in these respects, it differs in the presence of a large saber shaped angulated ridge of bone rising on each side of the nape. The dorsal spines are high and connected by

Amphacanthus cyanotaenia Bleeker,
Nat. Tijds. Ned. Indië, vol. 4, 1853, p. 606.
Ternate; Amboina; l.c., deel 5, 1853, p. 319
(Amboina); l.c., deel 6, 1854, p. 90 (Banda,
Ceram); l.c., deel 8, 1855, p. 296 (Ternate);
l.c., deel 9, 1855, p. 406 (Kahui, Halmaheira).
— Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 1,
no. 3, 1856, p. 8 (Macassar).

Amphacanthus oculatus Thiollière, Faun.
Woodlark, 1857, p. 178. Woodlark Island.

Siganus zonicaps Veale, Occas. Pap.
Bishop Mus., vol. 4, no. 1, 1906, p. 64, fig. 18.
Shortland Island.

Siganus marmoratus (part) Snyder, Proc.
U. S. Nat. Mus., vol. 42, 1912, p. 511 (Okinawa,
Riu Kiu).

membranes nearly to their tips. Scales large and rough.

Synopsis of Species

a.' Body with dark cross bands; no preorbital tentacle.

bleekeri.

a.² Body with scattered dark spots; preorbital with tentacle long as eye.

favo.

Eboria bleekeri (Steindachner and Döderlein)

Pterois bleekeri (Döderlein) Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, Naturw. Kl., vol. 49, pt. 1, p. 200, pl. 6, fig. 1-a, 1885 (type locality, Tokyo, Japan). — Ishikawa and Matsmura, Prelim. Cat. Fish. Mus. Tokyo, p. 50, 1897 (reference). — Jordan and Snyder, Annot. Zool. Japan., vol. 3, p. 99, 1901 (reference).

Eboria bleekeri Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 145, 1904 (Tokyo). — Izuka and Matsumura, Cat. Zool. Spec. Tokyo Mus., Vert., p. 127, 1920 (Tokyo market). — Schmidt, Trans. Pac. Comm. Acad. Sci. U. S. S. R., p. 109, 1931 (Misaki).

Vigamus fuellus (Schlegel).

Amphacanthus fuellus Schlegel, Bydr. dierk., deel 1, 1852, p. 39, fig. 2. East Indiën.
— Weber, Siboga Exped., livrd 65, 1913, p. 329 (Gisser).
— Bleeker, Act. Soc. Sci. Ind. Néerl., vol. 2, no. 7, 1857, p. 5 (Amboina); l.c., vol. 3, no. 4, 1857–58, p. 3 (Macassar).

Teuthis fuella Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 523 (copied). — Bleeker, Verslagen Akad. Wet. Amsterdam, deel 16, 1864, p. 368 (Aru Islands, Moluccas). — Bleeker, Ned. Tijds. dierk., deel 1, 1863, p. 249 (Flores).
— Günther, Journ. Mus. Godeffroy, band 2–3, heft 5–6, 1874, p. 91 (Apamama; Pelew Islands).

Depth 2 $\frac{3}{5}$; head 2 $\frac{1}{3}$, width 2 $\frac{1}{3}$. snout 2 $\frac{3}{4}$ in head; eye 4 $\frac{1}{2}$, 2 in snout, ~~[illegible]~~ 1 $\frac{1}{3}$ in interorbital; maxillary reaches $\frac{1}{3}$ in eye; expansion 1 $\frac{4}{5}$ in eye, length 2 $\frac{7}{8}$ in head; interorbital 3 $\frac{2}{3}$, concave.

Front, orbital and antero-supra-orbital edge, also postero-supraorbital edge serrate; variable median, elevated, thin occipital crest, arched back, sometimes twice as long as orbit; 2 postocular spines; suprascapula with spine; ridge of suborbital stay with small spines and ends behind in rather short spine at preopercle angle; several denticles at lower hind end of preorbital; opercle ends in spine.

Scales 40+3?; in lateral line (on figure); 6 above; single postocular row before ~~dorsal~~ vertical ridge of preopercle; 5 rows on cheek below ridge of suborbital stay. Pectoral base scaleless, also interorbital. Very short filaments over eye, front nostril, preorbital and preopercle.

D. XIII, 9, seventh spine equal head, fifth ray 1 1/4; A. III, 7, third ray 2 2/3, fifth ray = 1 1/2; caudal 2 in rear of fish rounded behind; least depth of caudal peduncle & 1 in head 4; pectoral 1 3/4 in fish without caudal, not quite reaching caudal base, rays I, 8, VII, ventral rays I, 5, fin 1 1/4 in head.

Body with at least 4 dark

cross bands, greatly narrower than interspaces. Head with 4 dark narrow transverse bands, one from lower eye edge and other from hind eye edge. Fins yellowish, with 6 dark transverse narrow bands on pectoral. Length of figure 171 mm. (Steindachner.)

Japan.

1337 [692]. D. 5311. N. Lat. 21° 33', E. long. 116°15'; China Sea, vicinity of Hong Kong. In 88 fathoms. November 4, 1908. Length 127 mm.

E. S. N. M., No. 57811. Japan. P. L. Jouy. Length 164 to 175 mm. Two examples.

1368

Elopsia pavo Schmidt

Elopsia pavo Schmidt, Trans. Pac. Comm. Acad. Sci. U. S. S. R., vol. 2, p. 109, fig. 18, 1931 (type locality, Nagasaki)

Depth 3 3/4; head 2 4/5. Snout 2 1/6 in head from snout tip; eye 4 2/5, 1; 2 1/4 in snout, greater than interorbital; maxillary not quite reaching eye, expansion 1/4 in eye, length 2 1/3 in head from snout tip; teeth small, villiform, in bands in jaws, on vomer, non on palatines or symphysis of mandible; interorbital 5 1/4 in head from snout tip.

No nasal spines; preorbital 1/2 of eye, covered by crust of

forehead and snout with cross bars of yellow and blue - and also striped portion of side of head. Spinous dorsal olivaceous or orange, bright yellow on soft dorsal. Caudal yellow. Anal pale hyaline orange. Pectoral dusky. Ventral colorless.

30572. U.S.N.M. New Guinea. Australian Museum. Length 203 mm.

bony denticles, connected to ridges radiating from center; band of such denticles along ridge of suborbital stay, reaching edge of preopercle and bordering it and subopercle; orbital rims with broad bands of bony denticles bordering orbit from above; posterior to eye denticulated crest reaching upper edge of gill opening; preopercle with 3 spines directed backward, and 2 below directed downward; opercle with blunt spine, directed backward. In female small, and in male large barbel on crest of bony preorbital, length $1\frac{2}{5}$ in mouth.

Scales 27 in lateral line. Scales large, ctenoid. Male

with anal papilla.

D. XIII, 9, fifth spine 1 1/8 in total length, head 4; fifth ray 1 1/2; A. II, 7, third ray 1 2/5; caudal 2/3 in rest of fish, apparently rounded; least depth of caudal peduncle 2 2/3 in head; pectoral 2 1/10 in fish without caudal, rays I, 10, VIII; ventral rays I, 5, fin 1 2/3 in total head length.

Male grayish, female brownish. Inside of upper half of pectoral of male blackish, with round, blue, ocelliform spots; in female inside pectoral gray with brown ocelli. Scattered brown spots on body, but no distinct cross bands. Length female 269 mm, male 184 mm. (Schmidt.)

Japan.

Genus Brachyrus Swainson

Brachyrus Swainson, Nat. Hist. Animals, vol. 2, p. (71) 264, 1839. (Type Pteroïs zebra Cuvier, designated by Swain, Proc. Acad. Nat. Sci. Philadelphia, p. 277, 1882.) (Brachirus Swainson, op. cit., p. 303, a different name with Pleuronectes orientalis Schneider, designated as type by Swain, op. cit., p. 281.)

Hendrochirus Swainson, op. cit., p. 180, 1839. Atypic. (Type Pteroïs zebra Cuvier. Designated by Jordan, Tanaka, Snyder, Journ. College Sci. Tokyo, vol. 33, art. 1, p. 245, 1913.)

30543 U.S.N.M. New Guinea.
Australian Museum. Length 223 mm.

52496 U.S.N.M. Apia, Samoa.
Bureau of Fisheries. Length 117 to 160 mm.
3 examples.

66054 U.S.N.M. Suva, Fiji.
Albatross Collection. Length 130 mm.

Pectoral not reaching caudal, upper rays branched and with complete membrane, or entact to tips of rays.

Distinguished from Pteroïs chiefly by its shorter pectoral, the dorsal spines variously long or short with deeply incised membranes and the caudal fin rounded.

Analysis of Species

a.' Dorsal spines moderate, longest less than greatest body depth.

b.' Dark transverse bars on pectoral all similar; ventral and anal with dark transverse bands;' scales 30 or 31. brachypterus.

b.2 Broad terminal dark bar on pectoral; ventral and anal without dark transverse bands; scales 28. bellus.

a.2 Dorsal spines long, greater than body depth.

c.' Supraorbital tentacle feeble; eye 3 in head;' scales 35. jordani.

c.2 Supraorbital tentacle long, nearly twice eye;' eye 3 3/4 to 4;' scales 25. zebra.

1380

Brachyrus brachypterus (Cuvier

Pteroïs brachyptera Cuvier, Hist. Nat. Poiss., vol. 4, p. 368, 1829 (type locality, none given). — Bleeker, Nat. Tijds. Ned. Indië, vol. 3, p. 265, 1852 (Amboina; Ceram). — (Günther, Cat. Fish. Brit. Mus., vol. 2, p. 126, 1860 (Amboina). — Klunzinger, Verh. zool. bot. Gesell. Wien, vol. 20, p. 808, 1870 (Red Sea). — Günther, Journ. Mus. Godeffroy, vols. 2-3, pts. 5-6, p. 82, 1874 (Samoa). — Ichmelty, Cat. Mus. Godeffroy, No. 7, p. 48, 1879 (Kandavu); No. 8, p. 5, 1881 (Kandavu). — Pöhl, Cat. Mus. Godeffroy, No. 9, p. 29, 1884 (Kandavu), p. 45 (New Guinea).

A large, ovoid red blotch on side of tail including caudal spine, becomes yellow in preserved examples. Also narrow blue line along dorsal and anal bases and another around chin from one angle of mouth to the other. Caudal edged white, broadly to behind, blackish submarginally all around with median bright red crescent.

China, Philippines, Polynesia, Hawaii.

19235 U.S.N.M. Fanning Islands. Dr.

[illegible]

Fisheries 1904. Length 180 mm. [05371.]

52475 U.S.N.M. Apia, Samoa. Bureau of Fisheries. Length 165 mm.

53330 U.S.N.M. Honolulu reef. Albatross Collection 1906. Length 187 mm.

53484 U.S.N.M. Honolulu. Dr. O.P. Jenkins. Length 184 to 193 mm. [1344.] 2 examples.

— Steindachner, Sitzg. Akad. Wiss. Wien, math.-naturw. Kl., vol. 115, pt. 1, p. 1407, 1906 (Apolu). —
Weber, Siboga Exped., vol. 65, Fische, p. 497, 1913 (Sulu Archipelago, Menado, Amboina, Rusa Bay).

— Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 914, Oct. 1927 (Natal).

Pteroïs brachypterus L.

Hepatus achilles (Shaw).

Acanthurus achilles Shaw, Gen. Zool., vol. 4, 1803, p. 383. No locality. — Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 218/160 (no locality). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 340 (China). — Günther, Journ. Mus. Godeffroy, Heft 4, 1875, p. 115, plate 71, fig. B (Samoa, Polynesia).

Acanthurus achilles Elera, Cat. Fauna Filip., vol. 1, 1895, p. 532 (Luzon, Cavite, Santa Cruz).

Teuthis achilles Fowler, Proc. Acad. Nat. Sci. Phila., 1899, p. 494 (Thornton Island, Polynesia).

Hepatus achilles Fowler, Bishop Mus. Bull., no. 22, 1925, p. 28 (Honolulu). — Fowler and Ball, Bishop Mus. Bull., no. 26, 1925 (1926), p. 14 (French Frigate Shoals, Johnston and Wake Islands).

Pteroïs brachypterus

— Bleeker, Nat. Tijds. Ned. Indie, vol. 3, p. (237) 265, 1852 (Wahai, Ceram); vol. 4, p. 92, 1853 (Amboina); vol. 5, p. 68, 1853 (Solor), p. 320 (Amboina); vol. 6, p. 457, 1854 (Amboina); vol. 9, p. 284, 1855 (Amoerang, Celebes); vol. 12, p. 213, 1856 (Mias); Act. Soc. Sci. Ind. Néerl., vol. 1, no. 5, p. 5, 1856 (Amboina); vol. 2, no. 7, p. 3, 1857 (Amboina); Nat. Tijds. Ned. Indie, vol. 16, p. 29, 1858 (Amboina); vol. 22, p. 112, 1860 (Buru).

— Weber, Siboga Exped., vol. 65, Fische, p. 497, 1913 (Sulu Archipelago, Menado, Amboina, Nusa Laut).

[illegible] 5, mout 1 1/4 to 2 3/8; eye 3 to 3 7/8, 1 2/5 to 2 1/5 in mout, 1 1/2 in interorbital, greater than interorbital in young; teeth about 30 in each jaw; maxillary 4 to 5 in head; interorbital 3 1/8 to 3 1/4, broadly and slightly convex; preorbital, preopercle limb, opercle and scapular arch rather finely striate. Gill rakers 4+17, short, flexible, spinescent, cuneate points.

Scales very small, ovoid, cycloid, 90 to 140 circuli. Cheek more or less completely covered with small scales to preopercle ridge.

D. XIII, 11, I, fifth spine 1 3/4 to 1 4/5 in head, fourth ray 1 3/5 to 1 3/4; A. VII, 9, I or 10, I, third spine 1 4/5 to 1 7/8, third ray 1 3/4 to 1 4/5; caudal little emarginate or truncate 1 1/4 to 1 3/5; least depth of caudal peduncle 4 1/4 to 5; pectoral 1 1/3 to 1 1/2; ventral 1 2/5 to 1 1/2.

Brown generally, becoming much paler posteriorly and on vertical fins,

Brachyrus brachypterus Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839 (in Cuvier).

Pseudomonopterus brachypterus Bleeker, Nederl. Tijds. dierk., vol. 1, p. 258, 1863 (Wahai, Ceram).

Pseudomonopterus (Hendrochirus) brachypterus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 53, pl. 3, fig. 3, 1876 (Nias, Celebes, Solor, Ceram, Amboina).

15-397 U.S.N.M. Honolulu. Dr. J. S.
Streets. Length 37 to 98 mm. 2 examples.
As Acanthurus blochii.

52505 U.S.N.M. Samoa. Bureau of
Fisheries. Length 135 to 195 mm. 3 examples.

17973 U.S.N.M. Honolulu. Dr. J. S.
Streets. Length 287 mm. Now uniform
brown. Caudal well emarginated.
As Acanthurus blochii.

52495 U.S.N.M. Lepia, Samoa. Bureau
of Fisheries. Length 30 to 270 mm.
6 examples. As Hepatus matoides.
~~Acanthurus blochii~~

55-630 U.S.N.M. Jolo, Philippines. Dr.
E. A. Mearns. Length 232 mm.

Dendrochirus brachypterus Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 378, 1905 (reference). — Fowler, Mem. Bishop Mus., vol. 10, p. 295, 1928 (Honolulu; Guam; types of D. hudsoni and D. chlorens; Hilo); vol. 11, no. 5, p. 349, 1931 (Kona, Hawaii); vol. 11, no. 6, p. 430, 1934 (Tongatabu; Kewalo Bay); Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 485, 1934 (Natal). — Herre, Fishes Philippine Exped., p. 66, 1931 (1935) (Dumaguete; Vitanbai).

hyaline, with semicircular basal blotch. Ventral black, except narrow blue fronts, which become white on tip of first ray. Vent yellow.

These examples differ a little in that the usual pale crescent from below the eye extends down and forward to maxillary to embrace pale band across chin. Also pectoral with pale base and colors on dorsals and anals greatly contrasted with very distinct whitish edges.

6959 and 6960. West coast of Tabtan Island. November 8, 1908. Length 133 to 166 mm.

8020. Reefs in Apra Bay, Guam. November 19 to 21, 1907. Length 124 mm.

1385

? Scorpaena boenigi Bloch, Nye Handl. Stockholm, vol. 9, p. 235, pl. 7, fig. 2, 1789.

Pterois barberi Steindachner, Anzeiger Akad. Wiss. Wien, vol. 16, p. 175, June 17, 1900 (type locality, Between Honolulu and Cape Horn); denks. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 70, p. 491, pl. 3, fig. 2, 1901 (type).

[Dendrochirus barberi Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, 1905 (reference).
Brachirus barberi Jordan and Snyder, Proc. U.S. Nat. Mus., vol. 28, p. 126, 1904 (Honolulu). — Jordan and Evermann, Bull. U.S. Fish Comm., vol. 23, pt. 1, p. 465, 1903 (1905) (Waikiki; Honolulu).

broadly white, which broader than eye above. Gill opening with yellowish shades. Caudal peduncle becoming yellow, spine bright sulphur. Dorsal bright sulphur basally, widens to include most of last ray; narrow blue margin on spinous fin, becomes white on rayed fin; orange red bar begins on last spine and extends under narrow black band to third from last ray where fading dusky; rest of fin dark. Anal like dorsal but without orange. Caudal whitish, entirely surrounded by blue white band and central area more dusky with yellow bar on front portion. Pectoral rays black, membranes

Pteroïs zebra (not Quoy and Gaimard Veale, Occas. Pap. Bishop Mus., vol. 1, no. 3, p. 122, 1900 (Guam, part).

Dendrochirus hudsoni Jordan and Evermann, Bull. U. S. Fish Comm., vol. 22, p. 202, 1902 (1903) (type locality, Waikiki; Honolulu). — Snyder, Bull. U. S. Fish Comm., vol. 22, p. 536, 1902 (1904) (Honolulu). — Jordan and Evermann, op. cit., vol. 23, pt. 1, pl. 73, 1903 (1905).

1071

8940. Atulayan Island. January 18, 1909. 3 examples, 158 & 205 mm.

8954. Between Paran Point and Jesus Point, Luzon. June 21, 1909. Length 173 mm.

2 examples. June 14, 1909. Length 5/16 60 mm

2 examples. Buena Vista, mouth of River, Guimares Islands.

16045. Cabugan Island, Hinunangan Bay, Leyte. July 20, 1909. Length 130 mm.

256. Caxisigan. December 29, 1909. Length 108 mm.

11866. Gubat, Sorsogon, Luzon. June 23, 1909. Length 113 mm.

15644. Rapu Rapu Island. June 22, 1909. Length 218 mm.

6876. Santa Domingo. November 7, 1908. Length 170 mm. Purplish generally, blackish about head. Preorbital

Dendrochirus chlorens Jenkins, Bull. U. S. Fish Comm., vol. 22, p. 498, fig. 41, 1902 (1903) (type locality, Honolulu). — Jordan and Snyder, Proc. U. S. Nat. Mus., vol. 27, p. 946, 1904 (Honolulu); vol. 28, p. 126, 1904 (Honolulu). — Jordan and Evermann, Bull. U. S. Fish Comm., vol. 23, pt. 1, p. 465, fig. 204, 1903 (1905) (types; Honolulu). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, 1906 (reference). — Pietschmann, Bull. Bishop Mus., vol. 73, p. 18, 1930. (Kaneohe Bay, Oahu).

1068a

~~Acanthurus blochi (non Valenciennes)~~
~~Streets, Bull. U. S. Nat. Mus., vol. 7, 1877,~~
~~p. 68 (Honolulu).~~

~~Hepatus matoides (non Valenciennes)~~
~~Jordan and Veale, Bull. Bur. Fisher.,~~
~~vol. 25, 1905 (1906), p. 352 (Apia).~~

Dendrochirus sausaulele Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 378, pl. 52, fig. 1, 1905 (type locality, Apia; Pago Pago).

Pterois sausaulele Jordan and Dickerson, Proc. U. S. Nat. Mus., vol. 34, p. 616, 1908 (Suva, Fiji).

Hepatus glaucopareius (Schneider).

Harpurus glaucopareius (Forster) Schneider, Syst. Ichth. Bloch, 1801, p. 212. Tahiti.

Acanthurus glaucopareius Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 199 (Amalan; Moluccas). — Bleeker, Mem. Soc. Ind. Neerl., vol. 1, no. 5, 1856, p. (6) 47 (Amboina). — Bleeker, l.c., vol. 2, no. 7, 1857, p. 5 (Amboina). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 339 (type; Amboina). — Günther, Journ. Mus. Godeffroy, band 4, 1875, p. 114, plate 71, fig. A (Polynesia, East Indies).

Harpurus nigricans (non Chaetodon nigricans Linnaeus) Forster, Faun. Indica, 1795, p. 15.

Acanthurus aliala Lesson, Voy. Coquille, Zool., tome 2, pt. 1, 1830, p. 150. Amalan, Carolines.

Zenthis aliala Jordan and McGregor, Rep. U.S. Fish Comm. pt. 24, 1898 (1899), p. 280 (Clarion and Socorro Islands)

Acanthurus kaber (Montrouzier) Thiollière, Faune Woodlarks, 1857, p. 178 (name in synonymy).

1389

Depth 2 2/5 to 2 3/5; head 2 1/2 to 2 3/5, width 1 3/4 to 1 4/5. Snout 3 7/8 to 4 in head; orbit 3 2/5 to 3 3/4; eye 4 1/5 to 4 3/4, 1 1/5 to 1 1/4 in snout, greater than interorbital in young. to subequal with age; maxillary reaches 1/2 to 3/4 in eye, expansion 1 2/3 to 2 in orbit, length 1 7/8 to 2 1/3 in head; teeth in ~~minute~~ villiform bands in jaws and on vomer, none on palatine, in 5 or 6 transversly irregular rows in jaws; interorbital 4 3/4 to 6 1/2, deeply convex. Supraorbital edge denticulate, several postfrontal denticles, rather long denticulate parietal ridge; denticulate postocular ridge, continuous on supracapula; suborbital stay with denticulate ridge. Gill rakers 3 + 9, low, rough tubercles, 1/3 of gill filaments; which 2 1/3 in eye.

Scales 30 or 31 + 2 in lateral line; 7 above, 14 below, 6 predorsal, 7 across cheek to preopercle angle. Few skinny flaps on head. Scales with 8 to 12 basal radiating striae; 34 to 36 weak, short, minute apical denticles, with 2 or 3 transversely; circuli very fine.

D. XIII, 9, I, third spine 1 1/2 to 1 3/5 in total head length, third ray 1 1/2 to 1 3/4; A. III, 5, I, third spine 2 1/2 to 2 2/3, third ray 1 1/5 to 1 2/5; caudal 1 1/5 to 1 1/2, convex behind; least depth of caudal peduncle 4; ventral 1 2/5 to 1 1/2; pectoral 2 to 2 1/5 in combined head and trunk to caudal base.

Back brown, under surfaces paler, former more or less clouded or mottled with darker. Vertical fins pale, each spine

and ray finely spotted with blackish. Iris dark neutral gray. Paired fins dark neutral gray, barred with blackish.
Red Sea, Natal, East Indies, Philippines, Micronesia, Polynesia, Hawaii.

A. N. S. P., 4 examples. Natal. 1932.
H. W. Bell Marley. Length 58 to 122 mm.

1392

Brachyrus bellus Jordan and Hubbs

Brachirus bellus Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, p. 274, pl. 10, fig. 3, (June 27, 1925 ~~Aomori~~ type locality, Iwasaki, Japan).

19150. Batan Island. June 5, 1909.
Length 210 mm.

8709. Batan Island and Rapu Rapu
Island. June 5, 1909.

15492 to 15494. Batadanan Island.
June 15, 1909. Length 185 to 242 mm.

8557 and 8558. Bolinao. May 10, 1909.
Length 257 to 294 mm.

11633, 11634, 12458. Bugsuk Island,
Balabac. January 5, 1909. Length 120 to 225 mm.
8058. Busin Harbor. April 22, 1908. Length 270 mm.
9145. Cabugan, Chico Island. July 30, 1909.
Length 338 mm.

9344 and 1345. Cagayan, Sulu Island.
January 6, 1909. Length 125 to 213 mm.

9776, 9448, 9448. Candaraman Island,
Balabac. January 4, 1909. Length 223 to
295 mm.

depth 2 3/5; head 2 1/2. Snout 3 2/3 in head from snout tip; eye 4 1/5, 1 1/8 in snout; maxillary reaches 2/3 in eye, expansion 1 3/4, length 2 1/3 in head from snout tip; teeth small, blunt, in moderate bands in jaws and on vomer, none on palatines; interorbital 7 3/5, profile little convex due to eyes slightly impinging, deeply concave. No nasal spines; 2 blunt postero-supraorbital spines; occipital ridges moderately elevated, sharp, widely divergent, weak terminal spines over twice interspace of origins; small spine each side between occipital ridge and orbit; opercles without ridges or spines. Series of 3 short ridges ending in blunt spines from eye to below

origin of lateral line; ridge of suborbital stay complete, spineless. Preopercular spines 3, uppermost largest though small, others blunt.

Scales 28 along lateral line to caudal base; 4 above (on figure). Scales cycloid - on head, extend forward to middle of interorbital, 5 on cheek below ridge of suborbital stay. Body scales ctenoid, without accessory scales. Two suborbital, 1 nasal and 1 supraorbital leaf-like flaps.

D. XII, I, 9, I; membranes of spines deeply incised, fourth spine 1 2/5 in total head length, third ray 1 1/2; A. III, 5, I, third spine 2 1/8, third ray 1 1/5; caudal 1 1/6, convex behind; least depth of caudal peduncle 3 1/2; pectoral reaches 1 1/3 to caudal base or 2 1/10 in fish without caudal, rays

1395

I, I, IX; ventral rays I, 5, fin 1 1/4
in total head length.

Each scale on back and upper surface shown with rounded darker spot. Spinous dorsal with darker fencilings. Soft dorsal with scattered small dark spots, likewise caudal, and faint ones on anal. Pectoral with rather broad dark or blackish terminal bar, and rest of fin on upper part with 9 transverse dark bands. Ventral with submarginal dark spot on each ray. Length 64 mm.

(Jordan and Hubbs.

Japan.

1396

Brachyrus jordani (Regan)

Pterois jordani Regan, Ann. Mag. Nat. Hist., London, ser. 7, vol. 15, p. 20, 1905 (type locality, Inland Sea of Japan).

Dendrochirus jordani Snyder, Proc. U. S. Nat. Mus., vol. 42, p. 428, 1912 (Shimizu). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, art. 1, p. 245, 1913 (reference).

Brachirus jordani Jordan and Hubbs, Mem. Carnegie Mus., vol. 10, no. 2, p. 273, June 27, 1925 (Kagoshima Bay).

Xiganus vulpinus (Schlegel).

Amphacanthus vulpinus Schlegel, Bydrag tot de Dierk., deel 1, 1852, p. 38. East Indies. — Schlegel and Müller, Verhand. Nat. Ges. Zool., 1839-44, p. 12 (Moluccas, Celebes). — Bleeker, Nat. Tydr. Ned. Indië, deel 3, 1852, p. 236 (Ternate); l.c., deel 4, 1853, p. 132 (Ternate); l.c., deel 5, 1853, p. 154 (Macassar); l.c., deel 16, 1858, p. 29 (Amboina). — Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 1, no. 3, 1856, p. 4 (Manado); l.c., vol. 1, no. 5, 1856, p. 75 (Amboina); l.c., vol. 2, no. 7, 1857, p. 5 (Amboina); l.c., vol. 3, no. 4, 1857-58, p. 3 (Manado). — Weber, Siboga Exped., band 65, 1913, p. 330 (Gisser).

Teuthis vulpina Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 324 (Celebes). — Günther, Journ. Mus. Godeffroy, band 2-3, Heft 5-6, 1874, p. 91 (East Indies, Solomons, Pelew Islands).

Eboria starkei Franz, Abhand. Bayer. Akad. Wiss., vol. 1, Suppl. band 4, p. 72, pl. 9, fig. 67, 1910 (type locality, Yokohama; Misaki; Nagami; Uzushi). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, art. 1, p. 245, 1913 (reference).

55956. U.S.N.M. Bacon, Philippines. Bureau of Fisheries. [3233]. Length 193 mm.

56310. U.S.N.M. Iloilo. Dr. A. Lung. 2 examples. Length 93 to 101 mm.

58052. U.S.N.M. Zamboanga. Dr. E.A. Mearns. August 21, 1906. 4 examples. Length 212 to 250 mm.

72701. U.S.N.M. Java. Messrs. Bryant and Palmer. Length 190 mm.

72702. U.S.N.M. Java. Messrs. Bryant and Palmer. Length 120 mm.

72703. U.S.N.M. Java. Messrs. Bryant and Palmer. Length 186 mm.

depth 3; head 3. Snout 3 in head; eye 3, twice interorbital; maxillary reaches $\frac{1}{3}$ in eye; interorbital concave. Supraorbital ridge with 2 or 3 teeth and anteriorly and posteriorly with smaller denticulations; suborbital ridge separated from eye by space equal to $\frac{1}{2}$ of eye; preopercle with 3 spines.

Scales 35 in longitudinal series. Interorbital scaly. Supraorbital tentacles feeble.

D. XIII, 10, fourth and fifth spines longest, nearly $2\frac{1}{2}$ in fish without caudal; A. III, 6; caudal peduncle $1\frac{1}{3}$ as long as deep; pectoral without detached rays, extending to caudal base; ventrals reaches little beyond anal origin.

Oviparous. Vertical fins pale, soft dorsal with a few dark spots. Pectoral and ventral blackish. Length 68 mm. to caudal base. (Regan.)

Japan. Said to be allied to Pterois migripinnis Gilchrist, which has a smaller eye and a broader interorbital region.

Brachyrus zebra (Quoy and Gaimard

Pteroïs zebra Quoy and Gaimard,
Voy. Uranie, Zool., p. 329, 1825
(type locality, Coupang Bay, Timor).
— Cuvier, Hist. Nat. Poiss., vol. 4, p.
269, 1829 (Mauritius; Moluccas). —
Quoy and Gaimard, Voy. Astrolabe,
Zool., vol. 3, p. 692, pl. 11, fig. 6, 1834
(New Guinea). — Valenciennes, Règne
Animal, Ed. Ill., pl. 24, fig. 1, 1839.
— Bleeker, Journ. Indian Archip.; vol.
3, pp. 66, 68, 1849 (Celebes); Nat. Tijds.
Ned. Indië, vol. 3, p. (237) 265, 1852
(Wahai; Amboina), p. 546 (Amboina);
vol. 4, p. 92, 1853 (Amboina); vol. 5,
p. 320, 1853 (Amboina); vol. 6, pp.

7460. Port Hartford, Kyushu. Fourteen fathoms, mud. Forsuke, 43. 1906. Four ~~fish~~ 467 mm. Skeleton throughout.

Pectoral dusky black, edge lemon yellow and hyaline. Caudal spine smoky, black line forward from socket nearly length of pectoral.

5003. Simonor Island. February 24, 1908.

Length 305 mm.

5035. Katanki wharf. February 27, 1908.

Length 265 mm.

pp. 457, 459, 1854 (Amboina); vol. 8, p. 306, 1855 (Batoe); vol. 9, p. 65, 1855 (Batu); vol. 11, p. 94, 1856 (Banda), p. 385 (Kajeli, Buru); vol. 12, p. 213, 1856 (Dias), p. 230 (Batu); Act. Voc. Sci. Ind. Neerl., vol. 1, No. 3, p. 4, 1856 (Manado); vol. 1, No. 5, p. 5, 1856 (Amboina); vol. 2, No. 7, p. 3, 1857 (Amboina); vol. 3, No. 9, p. 5, 1857-58 (Priaman, Viboya); Nat. Tijds. Ned. Indie, vol. 16, p. 29, 1858 (Amboina); vol. 17, p. 142, 1858-59 (Boleleng, Bali); vol. 20, p. 129, 1859-60 (Boni), p. 141 (Badjoa; Boni); vol. 22, p. 112, 1860 (Buru).

8002. Port Bamalacan, Marinduque.
February 23, 1909. Length 300 mm.
Chocolate brown generally. Shoulder
mark deep blue black. Streak before
caudal spine deep black. Edges of
dorsal and anal bright blue and
narrow red line at dorsal base.
Margin of caudal crescent white, with
tinge of blue at base of white edge.
Pectoral mostly body color, posterior
edge hyaline with yellow submargin.
Ventral body color, paler at inner edge.

6575. Port Maricaban, Island reef.
July 21, 1908. Length 320 mm. Shoulder
black and caudal spine with black stripe.
Dorsal with orange and anal somewhat
similar.

— Günther, Cat. Fish. Brit. Mus., vol. 2, p. 126, 1860 (Amboina; China; Malaya). — Bleeker, Verslag. Akad. Wet. Amsterdam, vol. 14, p. 97, 1862 (Ternate). — Guichenot, Notes I. Réunion, vol. 2, p. 25, 1862.

— Günther, Journ. Mus. Godeffroy, vol. 2-3, parts 5-6, p. 82, 1874 (Indian Ocean; Pelew Islands). — Day, Fishes of India, pt. 1, p. 153, 1875 (Andamans). — Peters, Monatsb. Akad. Wiss. Berlin, p. 439, 1876 (Mauritius).

purple line. White bar on caudal peduncle obsolete. Pectoral tip hyaline, yellow band basally. ♂ Front ventral edge $\frac{2}{3}$ its length bluish.

8055 and 8058. Mompog Island, Anabuyan Island. March 3, 1909. Length 260 to 275 mm.

6615 and 6616. North west Point, Verde Island. July 22, 1908. Length 270 to 303 mm.

12797. Opol, Mindanao. August 4, 1909. Length 142 mm.

7947. Pagapas Bay, Luzon. February 20, 1909. Length 195 to 240 mm.

8737. Port Agojo, Catanduanes Island. June 10, 1909. Length 260 mm.

— Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 34, 1880 (Levuka, Fiji).

— Day, Fauna British India, vol. 2, p. 61, 1889.

— Boulenger, Ann. Mag. Nat. Hist., London, ser. 6, vol. 20, p. 373, 1897 (Rotuma).

— Seale, Occas. Pap. Bishop Mus., vol. 1, no. 3, p. 22, 1901 (Guam). — Garman, Bull. Mus. Comp. Zool., vol. 39, p. 232, 1903 (Suva, Fiji). — Evermann and Seale, Bull. Bur. Fisher., vol. 26, p. , 1906 (Bacon, Philippines).

margined bright blue. White crescent in margin of caudal fork. Pectoral with yellow.

7246. Masinloc Bay, Zambales.

November 23, 1908. Length 243 mm.

Cuneate bar of dark, brownish purple, not quite length of pectoral behind eye and slightly oblique across shoulder. Tapering stripe of brownish purple forward from base of caudal spine. Dorsal yellowish brown, narrow blue edge little broader and more brilliant posteriorly. Caudal with bright blue margin and dark purple basal line; interior with bluish white band tapering away at points of fin - and band preceded basally by narrow

— Jordan and Richardson, Philippine Journ. Sci., p. 52, 1910 (reference). — Weber, Siboga Exped., vol. 65, Fische, p. 496, 1913 (Damar, Insa Laut, Banda). — Van Bande, Fisher. Mar. Biol. Surv. South Africa, Rep. No. 3, Spec. Rep. No. 1, p. 31, 1922 (1924). (South Africa, in 23 fathoms). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 915, Oct. 1927 (Natal). — Mc Culloch, Austral. Mus. Mem., vol. 5, pt. 3, ~~Nov~~ p. 391, Nov. 28, 1929 (reference).

body color. Caudal forks with white. Pectoral tip sulphur yellow.

8815. Maculabo Island. June 13, 1909.

Length 343 mm.

8367. Malapascua Island. March 16, 1909. 2 examples. Length 245 & 280 mm. Long black shoulder mark and caudal spot with black rocket. White on purple in caudal forks. Body not distinctly striped. Pectoral with terminal third yellow.

12024. Malcochin Harbor, Linapacan Island. December 19, 1908. Length 220 mm.

6165. Inamalay, Mindoro. June 4, 1908. Length 270 mm. Black shoulder stripe present. Dorsal dark umber, fades to sulphur yellow. Dorsal and anal

1405

Brachyrus zebra Swainson, Nat. Hist. Animals, vol. 2, p. 264, 1839 (on Cuvier).

Pseudomonopterus zebra Bleeker, Ned. Tijds. Dierk., vol. 1, p. 344, 1863 (Madagascar).

Pseudomonopterus (Dendrocherus) zebra Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 50, 1876 (Sumatra, Batu, Nias, Bali, Celebes, Timor, Ternate, Buru, Ceram, Amboina, Banda, Aru, Waigiu, Rawak); Arch. Néerl. Sci. Nat., Harlem, vol. 13, p. 37, 1878 (New Guinea).

8253. Galvaney Island, Ragay Gulf. March 9, 1909. 2 examples. Length 247 to 267 mm.

11865. Subic, Luzon. June 23, 1909. Length 170 mm.

8426. Dilig, Lubang Island. July 4, 1908. Length 175 mm.

9826. Little Santa Cruz Island, Zamboanga. May 26, 1908. Length 207 mm.

8312. Lobe Bay, Mataccado Island. May 13, 1909. Length 280 mm.

5411. Inactan reef, Inactan Island. April 6, 1908. Length 178 mm. Seal brown. Black stripe on postorbital across shoulder. Iris silvery, orange below. Dorsal and anal with narrow blue edges on blacks, vertical fins

Dendrochirus zebra Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 378, 1905 (reference). — Fowler, Mem. Bishop Mus., vol. 10, p. 294, 1928 (Guam, Gilbert Islands, Fiji). — Herre, Fisher Philippine Exped., p. 66, 1931 (1934) (Dumaguete).

8027. Capulaan Bay, Pagbilao Island, Luzon. February 24, 1909. Length 258 mm. Dorsal and anal edges narrowly bright blue. Fork of caudal whitish. Pectoral tip yellow.

8274. Casamahala Bay, Luzon. February 24, 1907. Length 258 mm.

7749 and 12254. Caxisigan Island. January 2, 1907. Length 260 to 290 mm.

12663. Cebu market. April 4, 1908. Length 143 mm.

8721. Atulayan Island, Luzon Gulf. June 18, 1909. Length 326 mm.

8861. Duet Point. June 14, 1909. Length 303 mm.

222, 759 to 7593, 12482. Endeavor Strait. December 23 and 24, 1908. Length 190 to 433 mm.

Depth 2 3/4 to 2 4/5; head 2 2/5 to 2 1/2, width 1 4/5 to 2. Snout 3 1/6 to 3 1/2 in head from snout tip; eye 3 3/4 to 4, 1 1/5 in snout, greatly exceeds interorbital; maxillary reaches 1/2 in eye, expansion 1 1/3 to 1 3/4 in eye, length 2 1/8 to 2 2/5 in head from snout tip; interorbital 5 1/10 to 7 1/2, concave. Gill rakers 3 + 11, low tubercles, barely 1/3 of gill filaments which 2 1/2 in eye.

Nasal spine 1; supraorbital edge more or less denticulated; 2 or 3 spines each side of occiput; row of 2 or 3 upper postocular spines; large suprascapular spine; ridge of suborbital stay denticulated; 3 preopercular spines, uppermost largest.

Scales 56 + 4 in lateral line; tubular scales 25 + 1; 8 scales above lateral line to soft dorsal origin, 12 below; 18 predorsal. Orbit anteriorly with tentacle nearly twice its diameter, with small filaments. Preorbital, front nostril, suborbital and lower preopercular edge with skinny flaps. Scales with 11 basal radiating striae; 33 or 34 apical denticles, in 5 transverse rows.

D. XII or XIII, 11, I or 12, I, sixth spine $2\frac{1}{3}$ to $2\frac{2}{5}$ in fish without caudal, first spine $1\frac{1}{2}$ to $2\frac{3}{4}$ in total head length, fifth ray $1\frac{3}{4}$ to $1\frac{4}{5}$; A. III, 6, I or 7, I, third spine $2\frac{1}{3}$ to $2\frac{3}{5}$, third ray $1\frac{2}{5}$ to $1\frac{3}{4}$; caudal $1\frac{1}{5}$ to $1\frac{2}{5}$; ventral 1 to $1\frac{1}{5}$, rays I, 5; pectoral

rays I, 7 or 8, VII or VIII, fin reaches
1 1/8 to 1 1/5 to caudal base, 1 3/4 to
1 4/5 in fish without caudal.

Dull brown. Crossbands dark.
Vertical fins all whitish, with
fin dusky crossbars. Paired fins
blackish, with whitish simple
rays to pectoral and edge of
ventral whitish.

Natal, Mauritius, Bourbon,
Madagascar, Andams, Malaya,
East Indies, Philippines,
China, Micronesia, Polynesia.

Genus Parapteroïs Bleeker

Parapteroïs Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, pp. 4, 56, 1876. (Type Pteroïs heterurus Bleeker, monotypic.)

Body elongately ovate, compressed, Head moderate, compressed. Snout rather long, oblique. Eye elevated, median in head length. Mouth moderate, low, little inclined, lower jaw protruded. Maxillary extends below eye, little expanded below or terminally. Teeth in jaws and on vomer, none on palatines. Ridges on head above, preorbital, suborbital stay and preopercular edge spinescent?. Branchiostegals 7.

Priodon (Cuvier) Quoy and Gaimard, Voy. Uranie, Zool., January 29 – May 26, 1825, p. 377. Type Priodon annulatus Quoy and Gaimard, monotypic.

Priodontichthys Bonaparte Prosp. Syst. St. Générale (Mag. Nat. Hist. Univ. Vert.), 1831, p. 109. Type Priodon annulatus Quoy and Gaimard, virtually as Priodontichthys Bonaparte proposed to replace Priodon (Cuvier) Quoy and Gaimard.

Ceris Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. ~~225~~ 295. Type Ceris anginosus Valenciennes, monotypic.

Ceris Günther, Zool. Record, vol. 2, Pisces, 1865, p. 187. Type Ceris anginosus Valenciennes.

Atiuinus Valenciennes, l.c., p. ~~225~~ 304. Type Atiuinus thynnoides Valenciennes, monotypic.

Callicanthus Swainson, Nat. Hist. Anim., vol. 2, 1839, p. 256. Type Atiuinus elegans Rüppell

1911

Scales moderate, about 36 in lateral series, finely ctenoid. Head scaly. Lateral line distinct, continuous. Dorsal continuous, spines long and largely free, much higher than body depth and twice as high as soft dorsal. Anal like soft dorsal, with 2 small spines in front. Caudal long, with upper and lower ray extended in filament. Pectoral long, reaches caudal. Ventral long, little shorter than pectoral.

One species. Known by its truncate caudal, with the upper and lower ray each extended in a filament.

1412

Analysis of Species.

a. Scales 35 or 36 in lateral line. heterurus.

a.² Scales 40 to 46 in lateral line. macrurus.

Parapterois ~~Brachyrus~~ heterurus (Bleeker)

Pteroïs heterurus Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 1, No. 5, p. 33, 1856 (type locality, Amboina). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 127, 1860 (copied). —

Pteroïs heterura Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, art. 2, p. 62, 1923 (Takao, Formosa).

Parapteroïs heterurus Bleeker, Verh. Natuurk. Kon. Akad. Wet. Amsterdam, vol. 16, No. , p. 55, pl. 1, fig. 4, 1876 (Amboina); Atlas Ichth. Ind. Neerl., vol. 9, pl. (5) 415, fig. 6, 1876-77.

Depth 3 1/5 to 3 1/4; head 2 1/2 to 3 3/4, width 1 4/5 to 2 1/10. Snout 2 3/5 to 3 in head from snout tip; eye 3 to 3 4/5, 1 1/10 to 1 1/5 in snout, greatly exceeds interorbital; maxillary reaches to eye or 1/8 in eye, expansion 1 1/2 to 2 in eye, length 2 to 2 1/8 in head from snout tip; teeth minutely villiform, in moderately wide bands in jaws and on vomer, none on palatines; interorbital 5 to 6, deeply concave. Gill rakers 6 + 1/2, equal gill filaments or 2 3/4 in eye. Supraorbital ridge with low serrae; fused ridge of occipital - nuchal elements with denticulated edge; strong rugosely rough broad postocular spine, with rough lower ridge to suprascapula; preorbital

broadly angular, denticulate on edge and serrate ridge continuous with similar ridge on suborbital stay to preopercle; preopercle limb denticulate, widely to at angle, with 4 marginal spines, of which uppermost longest. Young examples less denticulated. Scales 32 or 33 + 3 close along above lateral line [not 43 as given by Fowler and Bean]; 6 scales above, 11 below. Head with rather large scales on cheeks, opercles, postocular region and top of head, otherwise naked. Small flap over front nostril; long flap from preorbital at lower apex, little longer than eye, supraorbital flap sometimes half as long. Scales with 9 to 11 basal radiating striae; 5 to 7

weak apical denticles; circuli very fine.

D. XIII, 9, I, fourth spine about long as head, fourth ray 1 1/5 to 1 3/5; A. II, 7, I, second spine 2 1/5 to 3, third ray 1 1/8 to 1 1/3; least depth of caudal peduncle 4 to 4 1/2; caudal 1 2/5 to 2 1/8 in rest of fish, pointed behind; pectoral 1 3/5 to 1 2/3, rays 19; ventral I, 5, fin 2 1/5 to 2 2/3 in fish without caudal.

Dull brown, with about 5 double sets of slightly darker vertical cross bands. On cheek 3 dark bands radiate from pupil of eye. Eye pale yellowish. Dark or blackish humeral blotch, nearly large as pupil. Branchiostegal region gray black, narrow edge whitish. Dark band from eye, anteriorly

crosses maxillary and lower face of mandible as well. Dorsals pale brown, caudal and anal paler, and all rays spotted with dark brown; on spines spots larger, paler and less conspicuous. Paired fins slate or gray black, former with 8 to 10 transverse pale bars or bands.

East Indies, Formosa.

U. S. N. M., No. 76644. Takao, Formosa. Dr. Fred Baker. Length 73 to 148 mm. Thirteen examples.

1418

Parapteronis macrurus (Alcock)

Pteronis macrura Alcock, Journ. Asiatic Soc. Bengal, vol. 35, pt. 2, p. 303, 1896 (type locality, off Malabar coast in 45 fathoms); Illustr. Zool. Investigator, Fishes, pl. 5, pl. 18, fig. 4, 1898; Cat. deep Sea Fish. Indian Mus., p. 30, 1899 (types). — Barnard, Ann. South African Mus., vol. 21, p. 913, Oct. 1927 (types of Pteronis migripinnis and P. natalensis ♂♀; Natal, 22 to 26 fathoms).

1419

Pterois nigripinnis Gilchrist, Marine Investig. South Africa, vol. 3, pt. 2, ~~1905~~ pl. 20, 1905 (type locality, Found 2½ miles off the Umhlanga River mouth, Natal, in 22 to 26 fathoms). — Gilchrist and Thompson, Ann. Durban Mus., vol. 1, pt. 4, p. 409, May 21, 1917 (reference).

Pterois natalensis Von Bonde, Fisher. Marine Biol. Surv., Rep. No. 3, No. 1, p. 32, 1922 (1924) (type locality, Natal, in 29 fathoms).

depth 3; head 2½ to 2⅘. Eye subequal with snout, 3½ in head; maxillary reaches below front edge of eye; interorbital ½ to ⅔ diameter of eye. Pair of nasal spines; supraorbital, nuchal, temporal, preorbital and cheek ridges serrulate; 3 spines on preopercle edge.

Scales 40 to 46 in lateral series; 5 above. Scales very finely ctenoid. Cheek, opercle and interorbital scaly. Large flashy tentacle over eye and another overhanging maxilla.

D. XIII, 9, insertion of first spine between nuchal ridges at distance from eye less than eye diameter, fin spines much greater than body depth and membranes deeply incised, A. II (or III), 7; caudal rounded or

Pectoral brownish violet, with 8 transverse undulate bluish bands. Central violet brown or blackish with numerous bluish spots. Length 131 mm.
(Bleeker.)

East Indies.

pointed, one at least of uppermost rays extended as a filament in adult; pectoral reaching caudal base, rays II, 15, IV; ventral rays I, 5, reaches slightly beyond anal origin.

Grayish, with faint dark cross bars. Soft dorsal, anal and caudal with faint dark spots. Paired fins blackish, with white spots. Length 170 mm.

(Barnard.

Natal, India. Differs slightly from Parapteronis heterurus in its rounded caudal and only the upper ray described as extended ~~in the~~

Genus Apistus Cuvier

Apistus Cuvier, Hist. Nat. Poiss., vol. 4, ~~Doc. 19~~ p. 391, Nov. 1829. (Type Apistus alatus Cuvier, designated by Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, No. 2, p. 4, 1876.)

(Apista Hübner 1826 in Lepidoptera; Apistes Fischer 1923 nomen nudum; not involved.)

Pterichthys Swainson, ~~1839~~ Nat. Hist. Animals, vol. 2, p. 265, 1839. (Type Scorpaena carinata Schneider, designated by Swain, Proc. Acad. Nat. Sci. Philadelphia, p. 277, 1882.)

Dorsals pale greenish, as body, dusky basally, especially anteriorly. Black blotch on caudal peduncle above at base of dorsal. Anal like dorsal, paler, anterior base dusky, margin with obscure whitish band. Caudal peduncle slightly dusky. Ventral immaculate.

22407 and 22408. Hogar Point, Panay Island. February 4, 1908. Length 35-40 mm.

20753. Tabbayan, Mindoro Island. December 13, 1908. Length 67 mm.

6547 and 12192. San Roque, Leyte. July 29, 1909. Length 113 to 163 mm.

2 examples. Siliño Island, tide pool. August 10, 1909. Length 34 to 50 mm.

(Pterichthys Agassiz 1844, fossil cephalaspid invalidated.)

Hypodytes Gistel, Naturges. Thierr. kob. Schulen, p. VIII, 1848. (Type Apistus alatus Cuvier. Virtually, as Hypodytes Gistel proposed to replace Apistus Duoy and Gaimard 1835 = Cuvier 1829.)

Aspistes Gistel, op. cit., p. VIII. (Type Apistus alatus Cuvier. Error for Apistes.)

Polemius Kaup, Archiv Naturges., pt. 1, p. 333, 1858. (Type Apistus alatus Cuvier. Monotypic.)

14316 and 14318. Cabugan Island, ~~Hinunangan~~ Hinunangan Bay, Leyte. July 30, 1909. Length 115 to 145 mm.

14317. Same locality. July 31, 1909. Length 144 mm.

3 examples. Camiguin Island, from Malinao fishermen. August 3, 1909. Length 55 mm.

13996. Gandra Island. September 20, 1909. Length 167 mm.

15526 [1701]. Langao Point, southern Luzon. June 24, 1909. Length 173 mm. Dark greenish above, fading white below. Transverse bars begin nearly as black spot at dorsal base, fading to bistre below. Breast and belly white. Dark median dark band in front of head.

Body oblong, compressed. Head moderate. Snout rather long. Eye elevated, little advanced. Mouth large, oblique. Maxillary reaches below eye, expanded behind. Narrow bands of teeth in jaws, on vomer and palatines. Head without spinous crests above, sides rough. Orbit serrate. Preorbital with 3 spines, posterior elongate, directed backward. Preopercle with 4 to 6 spines. Opercular spines 2. Body covered with small or moderate scales, 30 to 60 in a lateral series. Dorsal long, continuous, begins behind eye, membranes deeply notched behind ends of spines which is, soft rays 7 to 9. Anal with 3 spines and 7 or 8 rays. Caudal convex behind, rather small.

Pectoral very long, acute, with 11 rays connected by membrane, lower one free. Ventral with spine and 5 rays.

Small fishes of the shores of southern Asia, the East Indies, Australasia, China and Japan. Noted for their envenomed dorsal spines and long pectoral fins.

Analysis of Species

a. Eye 4 to 4 4/5.

b. Scales 60 to 67; D. XV, 9; A. III, 8 or 9.

c. Lower gill rakers 15 or 16. alatus.

c.² Lower gill rakers 12 or 13. laurei.

b.² Scales 43 to 48 + 3; D. XVII, 8; A. III, 7. carinatum.

a.² Eye 5 1/2. balnearum.

Apistus alatus Cuvier

Apistus alatus Cuvier, Hist. Nat. Poiss., vol. 4, p. 289, 1829 (type locality, Pondichery). — Bleeker, Nat. Tijds. Ned. Indie, vol. 2, p. 174, 1851 (Moluccas). — Schlegel, Fauna Japonica, Poiss., pt. 2-4, p. 49, pl. 22a, fig. 2, 1843 (Japan).

— Bleeker, Verh. Batavia. Genoot. (Nat. Ichth. Bengal), vol. 25, p. 12, 1853 (reference); (Nat. Ichth. Bengal), vol. 25, p. 36, 1853 (reference); Nat. Tijds. Ned. Indie, vol. 2, p. 174, 1851 (Battavia); vol. 20, p. 235, 1859-60 (Nagasaki); Act. Soc. Sci. Ind. Néerl., vol. 3, no. 3, p. 2, 1857-58 (Kioesio), p. 5 (Japan).

(Natuurkund. Tijdschr. Ned. Indië).

Batav. Genoot. (Kal. Sch. Bengal), deel 25,
1853, f. 48. — Bleeker, Act. Soc. Sci. Ind.
Neerl., vol. 1, no. 3, 1856, f. 4 (Manado); vol.
1, no. 5, 1856, f. 6 (Amboina); vol. 2, no. 7,
1857, f. 5 (Amboina); vol. 3, no. 4, 1857–58,
f. 3 (Manado and Tamawambo); vol. 3, no. 9,
1857–58, f. 4 (Trussan), f. 5 (Priaman); vol.
5, no. 8, 1858–59, f. 2 (Toburini, Celebes), f. 18

1436

~~Diagramma.~~ — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 131, 1860 (Madras). — Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 59, pl. 3, fig. 5, 1876 (Java). — Steindachner and Döderlein, Denkschr. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 49, p. 200, 1884 (Tokio).

1855, p. 296 (Ternate), p. 445 (Cocos Islands); deel 10, 1856, p. 360 (Ternate); deel 11, 1856, p. 81 (Malang, Java), p. 385 (Kajeli, Buru); deel 13, 1857, p. 372 (Tanjong Islands), p. 478 (Karangbolling), p. 479 (Prigi); deel 14, 1857, p. 245 (Prigi); deel 15, 1858, p. 159 (Prigi), p. 200 (Goram); deel 17, 1858-59, p. 130 (Atapoepoe, Timor); deel 19, 1859, p. 331 (Patjitan), p. 333 (Karangbolling); deel 20,

size of eye. Sometimes it may be present on one side of the body and absent from the other side. In some cases it is conspicuously smaller than the eye. We list our materials according to the presence or absence of the black blotch.

1437

— Jordan and Snyder, Annot. Zool. Japan., vol. 3, p. 99, 1901 (reference).

52321/1. U.S.N.M. Apia, Samoa. Bureau of Fisheries. Length 126 to 178 mm. 4 examples.

61699 U.S.N.M. Mauritius. Colonel Nicholas Pike. Length 232 mm.

66052 U.S.N.M. Tari Tari, Gilbert Islands. Albatross Collection. Length 175 to 228 mm. 2 examples.

1438

Pterichthys alatus Swainson, Nat. Hist. Animals, vol. 2, p. 265, 1839 (on Worrah minor B Russell, Fishes of Coromandel, vol. 2, p. 45, ~~no. 160 B~~, 1803, type locality, Vizagapatam).

Hepatus triostegus (Linnaeus).

Chaetodon triostegus Linnaeus, Syst. Nat., ed. 10, 1758, p. 274. East Indies. — Broussonet, Ichth., 1782, no pagination, plate (East Indies, Pacific Ocean near Tahiti and Hawaii). — Gmelin, Syst. Nat. Linn., 1789, p. 1246 (Indian Ocean). — Walbaum, Arted. Pisc., vol. 3, 1792, p. 436 (on Linnaeus).

Acanthurus triostegus Schneider, Syst. Ichth. Bloch, 1801, p. 215 (Indiana and Pacific Oceans). — Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 197 (Hawaii, Mauritius, Seychelles, Tahiti, Marianne, New Zealand, Guaham, Society Islands). — Jenyns, Zool. Voy. Beagle, Fish., vol. 4, 1842, p. 75 (Cocos Island). — Bleeker, Nat. Tijds. Ned. Indie, deel 3, 1852, p. 237 (Makai, Ceram); deel 5, 1853, p. 320 (Amboina), p. 544 (Meeuwen Bay, Java); deel 6, 1854, p. (90) 102 (Banda Neira, Batavia, Padang, Cauer, Priaman), p. 517 (Celebes), p. 518 (Cocos Island); deel 7, 1854, p. 38 (Copied), p. 228 (Manado), p. 313 (Djinglaulan); deel 8,

Apistus israelitarum (Ehrenberg) Cuvier, Hist. Nat. Poiss., vol. 4, p. 396, 1829 (type locality, Tor, Red Sea). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 131, 1860 (copied). — Klunzinger, Verh. zool.-bot. Gesell. Wien, vol. 20, p. 809, 1870 (Red Sea).

Pterichthys israelitorum Swainson, Nat. Hist. Animals, vol. 2, p. 265, 1839 (on Cuvier).

Apistus carinatus (part) Day, Fishes of India, pt. 1, p. 155, 1873 (Ehrenberg's specimen).

blackish ground color, and spots sparse on spinous dorsal. Caudal dull brown, dusky terminally. Paired fins uniform brownish. Cutdal spine and groove brownish. Iris light brown.

Mauritius, Philippines, Melanesia, Micronesia, Polynesia, Hawaii. Known by its deep orbicular form and spotted coloration, the small white spots only in the posterior half of the body.

8871 Buang Bay, Talaut Island, March 15, 1909. Length 295 mm.

Apistus evolans Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 146, fig. 12, 1904 (type locality, Tokyo, Japan).

Apistus venenanus Jordan and Starks, op. cit., p. 148, fig. 13, 1904 (type locality, Nagasaki, Japan).

Hepatus guttatus (Schneider).

Acanthurus guttatus Schneider, Syst. Ichth.; Bloch, 1801, p. 215. Tahiti. — Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 195 (Mauritius and Friendly Islands). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 329 (Tahiti; Ameiteum, Mauritius). — Günther, Journ. Mus. Godeffroy, band 4, 1875, p. 109, plate 69, fig. A (Mauritius, New Hebrides, Society Islands, Samoa, Kingsmills, Pelew Islands, Hawaii).

Harpurus guttatus (Forster) Schneider, Syst. Ichth. Bloch, 1801, p. 215 (name in synonymy).

Hepatus guttatus Fowler and Ball, Bishop Mus. Bull., no. 26, 1925 (1926), p. 19 (Wake Island).

Chaetodontop stellati Gmelin, Syst. Nat. Linn., 1789, p. 1269. Friendly Islands.

Chaetodon stellatus Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 140 (name in text).

depth 3 1/3 to 3 2/3; head 3. Snout 3 to 3 1/8 in head; eye 4 to 4 4/5, 1 2/5 to 1 3/5 in snout; maxillary reaches 1/3 to 1/2 in eye, expansion 1 to 1 1/8 in eye, length 1/2 to 2 1/5 in head; teeth villeform, in narrow bands in jaws, -on vomer and palatines; mandibular barbel and 2 more each side behind symphysis, 1 1/2 to 2 in eye; interorbital 9 1/2 to 10 in head, narrow, concave. Gill rakers + 15 or 16, lanceolate, 1/2 to 3/5 of eye.

Antero-supraorbital edge denticulate; broken portocular ridge extends to suprascapula; parietal ridges without spines; preorbital with pair of small anterior spines and long posterior spine reaching back nearly or quite

to end of maxillary expansion; wide suborbitals cover cheek, with roughened radiating ridges, likewise opercle; ridge of suborbital stay continuous with large preopercular spine, which followed by 4 blunt triangular spines below, all graduated smaller downward; opercle with 2 flat spines.

Scales 60 to 70 in lateral line. Chest, breast and body with thin scales, finely pectinated. Fins naked. Lateral line straight or axial along side of body.

D. XV, 9, seventh spine $1\frac{3}{4}$ to $1\frac{4}{5}$ in head; fourth ray $1\frac{1}{3}$ to $1\frac{2}{5}$; A. III, 8, third spine $2\frac{1}{5}$ to $2\frac{2}{3}$, fourth ray $1\frac{1}{8}$ to $1\frac{1}{4}$; caudal $1\frac{1}{5}$ to $1\frac{1}{4}$, convex behind; least depth of caudal peduncle $3\frac{1}{4}$ to $3\frac{1}{2}$; pectoral $1\frac{3}{4}$ to $1\frac{9}{10}$ in fish

without caudal, rays 10 — I; ventral rays I, 5; fin 1 1/5 to 1 1/4 in head.

Upper surfaces, back and head brownish, sides and below pale to whitish, apparently with silvery reflections. Iris gray white. Fins more or less pale to whitish. Spinous dorsal mottled with darker, sometimes with small black spot behind end of first spine, and large post-median black blotch largely marginal from eighth to thirteenth spines. Soft dorsal with 4 or 5 dark cross bars, anal with 2 or 3 and caudal with 4 to 6: Pectoral largely black, paler basally. Ventral whitish.

Red Sea, India, East Indies, Formosa, Japan.

U. S. N. M., No. 57652. Japan.
P. L. Jouy. Length 86 to 135 mm.
Five examples. As Apistus evolans.

U. S. N. M., No. 59704. Kagoshima.
Dr. H. M. Smith. June 13.
Length 128 mm. As Apistus evolans.

U. S. N. M., No. 59705. Kagoshima.
Dr. H. M. Smith. June 13.
Length 100 mm. As Apistus evolans.

U. S. N. M., No. 71019. Nagasaki.
Albatross Collection 1906. Length 128 mm. As Apistus evolans.

U. S. N. M., No. 71276. Nagasaki.
Bureau of Fisheries. Length 120 mm.
As Apistus evolans.

U. S. N. M., No. 76645. Takao, Formosa. Dr. F. Baker. Length 57 mm.

Apistus faurei Gilchrist and Thompson

Apistus faurei Gilchrist and Thompson, Ann. South African Mus., vol. 6, p. 176, 1908-11 (type locality, off Umhlanga River mouth 2½ miles, in 22 to 26 fathoms; Ann. Durban Mus., vol. 1, pt. 4, p. 410, May 21, 1917 (reference). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 916, Oct. 1927 (Natal).

Hepatus nigrofuscus (Forskål).

Chaetodon nigrofuscus Forskål, descript. Animal., 1775, pp. XII, 64. Djedda, Red Sea. — Gmelin, Syst. Nat. Linn., 1789, p. 1268 (ex Forskål). — Walbaum, Arted. Pisc., vol. 3, 1792, p. 438 (ex Forskål).

Acanthurus nigrofuscus Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 157 (Bourbon Island and Red Sea). — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 331 (Ceylon and Amboina). — Guichenot, Voyage D. Remion, tome 2, 1862, p. 27. — Meyer, Ann. Soc. Espan. Hist. Nat. Madrid, vol. 14, 1885, p. 24 (Guanado, Celebes; Liao, Sangi). — Boulenger, Proc. Zool. Soc. London, 1887, p. 660 (Muscat). — Savage, Hist. Nat. Madagascar, Poiss., 1891, p. 338. — Jugmayer, Abhand. K. Bayer. Akad. Wiss., band 26, abth. 6, 1913, p. 12 (Oman).

Acanthurus (Rhombotides) nigrofuscus Klunzinger, Fische. Roth. Meer., 1884, p. 84.

Depth 3 1/3 to 3 1/2; head 3. Snout 4 in head; eye 4, subequal with snout, 3 times interorbital width; barbels longer than snout, 3 in head. Supraorbital ridges smooth; occipital ridges not ending in spines; angle of preopercle with 4 blunt spines below strong one. Lower gill rakers 12 or 13.

Scales 65 in lateral line; 9 above. Scales scarcely ctenoid, with jagged edges. Head naked, except small patch of scales behind end of maxilla.

D. XV, 9; A. III, 9 to 8; pectoral rays 10 - I, reaching end of base of anal, detached ray reaching not quite to end of ventral, its length equal to space from snout tip to preopercle spine;

ventrals reaching vent.

Grayish brown, more or less tinted. Anal with dark cross band. Spinous dorsal with black spot between first and second spines and larger one between eighth to twelfth spines. Soft dorsal and caudal with gray cross bands. Pectoral blackish, upper ray and free ray white. Ventral light.

(Barnard.)

Length 140 mm.

Natal.

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Apistus carinatus (Schneider)

Scorpaena carinata Schneider, Syst. Ichth. Bloch, p. 193, 1801 (type locality, Tranquebar).

Apistus carinatus Cuvier, Hist. Nat. Poiss., vol. 4, p. 395, Nov. 1829 (copied).

— Day, Fishes of India, pt. 1, p. 155, pl. 37, fig. 4, 1875 (not Ehrenberg's specimen); Fauna British India, vol. 2, p. 64, fig. 24, 1889 (copied).

— Bleeker, Verh. Batavia. Genoots. (Nat. Ichth. Bengal), vol. 25, p. 36, 1853 (reference).

Penthis triostegus Fowler, Proc. Acad. Nat. Sci. Phila., 1900, p. 513 (Oahu). — Jordan and Fowler, Proc. U. S. Nat. Mus., vol. 25, 1902, p. 552 (Okinawa and Misaki). — Ogilby, Mem. Queensland Mus., vol. 5, 1916, p. (Queensland).

Hepatus triostegus Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 270 (Caraycancillo and Calayan Island). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 423 (Tanegashima), p. 510 (Okinawa). — Fowler, Proc. Acad. Nat. Sci. Phila., 1925, p. 254 (Natal).

Harpurus fasciatus (Forster) Schneider, Syst. Ichth. Bloch, 1801, pp. xxxviii, 215. Maine Society Islands.

Acanthurus zebra Lacépède, Hist. Nat. Poiss., vol. 4, 1802, pp. 546, 548, plate 6, fig. 3. East Indies.

Chaetodon couaga Lacépède, l.c., pp. 726, 727. South Africa.

— Fowler and Bean, Proc. U. P. Nat. Inst., vol. 62, p. 63, 1920 (Takao, Formosa). — Fowler, Journ. Bombay Nat. Hist. Soc., vol. 30, No. 3, p. 641, June 30, 1925 (Madras).

1897, p. 514 (Aldabra). — Ishikawa and Matsumura, Prelim. Cat. Fish. Mus. Tokyo, 1897, p. 34. — Regan, Trans. Linn. Soc. London, 1908, p. 228 (Coetivy, Seychelles). — Regan, Ann. Durban Mus., 1908, p. 246 (Kosi Bay). — Gilchrist and Thompson, Ann. South Afr. Mus., vol. 6, pt. 2, 1908, p. 184 (Natal). — Weber, Siboga Expéd., band 57, 1913, p. 316 (Menado, Karakelang, Salibabu, Binangka, Lusa Laut, Banda, Timor, High Key, Roma, Timor, Rotti). — Pellegrin, Bull. Soc. Zool. France, tome 39, 1914, p. 227 (Diego Suarez, Nadambo and Fort Dauphin, Madagascar). Rhombotides triosteguus Bleeker, Ned. Tijds. Dierk., deel 1, 1863, p. 271 (Ataputu, Timor); deel 2, 1865, p. 142 (Buru). — Bleeker, Verslag. Akad. Wet. Amsterdam, deel 2e reeks, 2, 1868, p. 276 (Batjan), p. 284 (Volor). — Bleeker, Verhand. Akad. Wet. Amsterdam, deel 18, no. 3, 1879, p. 2 (Mauritius).

Pterichthys carinatus Swainson, Nat. Hist. Animals, vol. 2, p. 265, 1839 (on Cuvier).

~~Polemius~~.

Hypprodytes carinatus McCulloch, Mem. Austral. Mus., No. 5, pt. 3, p. 389, Nov. 28, 1929 (reference).

Apistus macrolepidotus Ogilby, New Fish Queensland Coast, p. 108, Dec. 20, 1910 (type locality, Low Bluff to Cape Gloucester, southern Queensland, 15 to 33 fathoms).

(Sumatra), 1859, p. 10 (Priaman). —
Gunther, Cat. Fish. Brit. Mus., vol. 3, 1861,
p. 327 (Amboina, Celebes, Malay Peninsula,
Malay Archipelago, Ameiteum, type of
Teuthis australis). — Bleeker, Verslag.
Akad. Wet. Amsterdam, deel 15, 1863, p. 21
(Hitu, Amboina). — Playfair, Fishes of Zanzibar,
1866, p. 56 (Mozambique). — Günther, Journ.
Mus. Godeffroy, band 4, 1875, p. 108 (Polynesia,
Hawaiian Islands). — Day, Fishes of India,
pt. 2, 1876, p. 204, plate 48, fig. 2. — Meyer, Linn.
Soc. Espan. Hist. Nat. Madrid, vol. 14, 1885, p.
24 (North Celebes and Macassar; Siao, Sangi;
Ternate). — Day, Fauna British India, vol. 2,
1889, p. 139, fig. 54 (Andamans and Madras).
— Thurston, Gov. Central Mus. Madras (Pearl
Fish. Manaar), 1890, p. 92 (Pambas). — Elera,
Cat. Faun. Filip., vol. 1, 1895, p. 531 (Luzon, Manila,
Ilocos, Currimao, Samar). — Jatzow and Lenz,
Abhand. Senckenberg. Nat. Ges., band 2, heft 1,

Depth 3 1/4 to 3 1/3; head 2 1/2 to 2 3/5, width 2. Snout 3 to 4 in head from snout tip; eye 4 1/10 to 4 1/5, 1 to 1 1/8 in snout, greatly exceeds interorbital; maxillary reaches 2/3 in eye, expansion 1 3/4 to 2 in eye, length 2 to 2 1/8 in head from snout tip; teeth minute, villiform, in bands in jaws, on vomer and palatines; symphyseal mandibular barbel 3 1/10 to 3 1/6 in total head length, lateral mandibular 3 1/2 to 4 1/10; interorbital 10 1/2 to 11 1/2 in head from snout tip. Antero-supra-orbital slightly raised, with 5 or 6 strong keels on front face; strong median spine from preopercle at end of suborbital stay and 2 broader, shorter points below; preorbital with

2 short points on lower edge forward and strong spine behind parallel with upper maxillary edge. 7/8 of eye; opercle with 2 spines, and like most of surface of cheeks, with broken striae or short keels; low keel ending in short spines behind above opercle, followed by supra-scapular spine; parietal keel-double each side, and also postocular. Gill rakers 6+13, of which 2 above and 2 below rudiments; 1 1/4 in eye, twice gill filaments.

Scales 43 to 48+3; 7 scales above lateral line, 14 or 15 below, 4 predorsal. Small patch of scales on cheek behind maxillary, head otherwise naked. Scales with 8 to 12 broad radiating striae; 5 apical pointed lobes,

each with keeled midrib, edges of lobes minutely and sparsely dentate; circuli fine.

D. XIV, I, 8, I, tenth spine 1 7/8 to 2 1/10 in total head length, first soft ray 1 1/2 to 1 2/3; A. III, 7, I, third ray 2 1/2 to 2 3/4, second ray 1 3/4 to 2; caudal 1 1/8 to 1 1/6, rounded behind; least depth of caudal peduncle 3 7/8 to 4; ventral 1 2/5 to 1 1/2; pectoral reaches base of last dorsal ray or caudal base, 1 3/5 to 1 2/3 in fish without caudal.

Pale brownish, whitish below. Dorsals pale, with black blotch larger than eye on posterior spines marginally; front spines with dusky blotches terminally. Soft dorsal and caudal pale, with 2 dusky cross bands.

Anal grayish, with deeper cross blotches. Pectoral blackish, pale basally. Ventral whitish, dusky on inner rays terminally.

India, Formosa, Queensland.

A. M. S. P., 2 examples. Madras. 1922. Madras Fisher. Department. Length 82 to 90 mm.

Apistus balnearum Ogilby

Apistus balnearum Ogilby, Proc. Roy. Soc. Queensland, vol. 23, p. 30, Nov. 7, 1910 (type locality, Metropolitan Baths, Brisbane, Queensland). — Mc Culloch, Mem. Austral. Mus., vol. 5, pt. 3, p. 389, Nov. 28, 1929 (reference).

Teuthis australis Gray, Kings Narr. Surv. Coast Australia, vol. 2, 1826, p. 435. West coast of Australia.

Acanthurus biunda Bennett, Fishes of Ceylon, 1830, pt. 11, plate 11. Ceylon.

Acanthurus subarmatus Bennett, Whaling Voy., vol. 2, 1840, p. 278. Society Islands.

Acanthurus pentagona Bleeker, Nat. Tijds. Ned. Indie, deel 1, 1850, p. 107. Batavia. — Bleeker, Act. Soc. Ind. Neerl., vol. 2, no. 7, 1857, p. 5 (Amboina).

Axinurus vedar (Montrouzier) Thiollière, Faune Woodlark, 1857, p. 181 (name in synonymy).

Acanthurus triostegus var. polygona Peters, Monatsb. Akad. Berlin, 1876, p. 439. Mauritius.

Acanthurus triostegus var. sandvicensis Streets, Bull. U.S. Nat. Mus., no. 7, 1877, p. 67. Honolulu.

Hepatus sandvicensis Fowler and Ball, Bishop Mus. Bull., no. 26, 1925 (1926), p. 19 (Laysan, Lisianski, Johnston Island, Wake Island, French Frigate, Zeckler).

Depth 3 1/3; head 2 2/5. Snout 3 1/4 in head; eye 5 1/2; hind border nearer snout tip than end of opercular flap; maxillary scarcely reaching below front of eye, length 2 1/2 in head; lower jaw broadly rounded, not fitting into rostral notch; mandible tip with small barbel, from either side of base of which rises much shorter one directed outwards; beyond these on each side a much longer barbel, nearly long as eye-diameter; interorbital wide as eye, with short median and 2 longer and higher lateral ridges in addition to the low superciliary ridges; occiput with pair of high, sharp, arcuate ridges, approaching medially and ending in spine;

postorbital anteriorly with 2 blunt points, posteriorly with sharp curved spine; suborbital ridge well developed, smooth but divided into continuous sections, commencing above base of preorbital spine and ending in front of that of upper preopercular spine; preopercle with long sharp spine at angle and 3 others, graduated shorter and blunter below; opercle with 3 low divergent ridges, upper ends in small spine at base of flap; parietal ridge smooth, divided medially.

Scales 60 in lateral series, arranged in regular series; lateral line $\frac{2}{5}$, straight; head and breast naked.

D. XV, 9, first spine equals or longer than fourteenth, which

1 1/3 in seventh and longest, last spine 1 1/15 in height of soft rays, which exceed that of spinous and not extending beyond caudal base; length of soft dorsal 2 2/5 of spinous; A. III, 6 or 7, high at soft dorsal, first spine much shorter than second which almost equals third and 1/5 in longest rays; caudal rounded, tips of rays slightly protruding; pectoral rays 11—I, reaches below middle of soft dorsal; second ray longest, fin 2 1/3 in length of body; 2 lower pectoral rays simple, and outer detached or 2 2/3 in head, inner ray separated from branched rays by broad membranous interspace; ventral 2 4/5 in body, reaches

base of third anal spine.

In life everywhere black except caudal and marginal band of variable width on soft dorsal and anal fins, which pure white. In formaline fades pale olive green, only upper surfaces of head and tubular scales of lateral line like living colors. Basal part of dorsal and anal faded like body, but outer part of caudal and paired fins as before.

(Ogilby.)

Length 40 mm.

Queensland.

Cottapistella cottoides (Linnaeus)

Perca cottoides Linnaeus, Syst. Nat., ed. 10, pt. 1, p. 291, 1758 (type locality, "Habitat ?"); ed. 12, pt. 1, p. 484, 1766 ("in India"). — Bonnaterre, Tabl. Ichth., p. 129, 1788 (copied). — Gmelin, Syst. Nat., Linn., pt. 1, p. 1313, 1789 (copied). — Walbaum, Artedi Pisc., vol. 3, p. 335, 1792 (copied). — Schneider, Syst. Ichth. Bloch, p. 91, 1801 (copied).

Apistus cottoides Valenciennes, Hist. Nat. Poiss., vol. 4, p. 410, 1829 (~~type locality~~, "mer des Indies" [= Java]). — Richardson, Voy. Samarang, Fishes, p. 4, pl. 3, figs. 6-7, 1848 (Borneo). — Bleeker, Nat. Tijds. Ned. Indie, vol. 4, p. 459, 1853 (Batavia, Java).

Prosopodasys cottoides Günther, Cat. Fish. Brit. Mus., vol. 2, p. 142, 1860 (China; New Zealand).

Cottapistus cottoides Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 75, pl. 3, fig. 1, 1876 (Java; Borneo). — ~~Rec~~ Waite, Rec. Canterbury Mus., vol. 1, no. 1, p. 28, April 25, 1907 (reference).

8361 and 8364. Atulayan Island.

June 18, 1909. Length 238 to 248 mm.

1 example. Batan Island. June 5, 1909. Length 193 to 265 mm. 2 examples.

A 582. Burburan Point, Viana Island.

September 20, 1909. Length 243 mm.

15189. Busin Harbor, Burias Island.

March 7, 1909. Length 206 mm.

7842. Busin Harbor. March 8, 1909.

Length 208 mm.

5630. Busin Harbor. April 22, 1908.

Length 300 mm.

9141. Cabugao, Chico Island. July 30, 1909.

Length 262 mm.

7870 and 7871. Cagayan, Sulu. January 8, 1909. Length 275 to 287 mm. Ground color lemon yellow, probably olivaceous or olive-green on back in life. Dark bar through eye from chin to nape. Head above smoky purplish or blackish, nape and back anteriorly with many small slate blue spots, perhaps brown on

Depth 3 1/3; head 2 2/5. Snout 3 1/2 in head from snout tip; eye 3 2/5; subequal with snout, subequal with interorbital; maxillary reaches below hind eye edge, expansion 1/2 in eye, length 1 7/8 in head from snout tip; narrow band of small teeth in jaws, and ^-shaped band on vomer; interorbital moderately high, convex. Upper preorbital spine longer than lower, little less than eye. Preopercle with 4 pungent spines, uppermost longest. Opercle with 2 diverging keels, without spines. Supra-scapular spine rudimentary.

Body covered with minute scales, absent from back anteriorly, breast and chest. Lateral line axial, little curved; tubes simple.

D. XIV, 8, insertion of first spine over front edge of eye, third spine $2\frac{1}{8}$ in total head length, third ray $2\frac{1}{4}$; A. III, 7, third spine 3, third ray 2; caudal $1/\frac{3}{4}$, convex behind; least depth of caudal peduncle $3\frac{4}{5}$; pectoral $1/3$, rays I, 4, IX; ventral rays I, 2, II, first 2 in head.

Rose green, paler below. Iris yellowish rose, orbital edge dotted with violet-red. Body dotted and spotted sparsely red violet and deep dusky brown rings. Dorsals pink variegated and marbled with violaceous. Other fins variegated with yellowish violet. Caudal with irregular transverse violet lines. Length 82 mm. (Bleeker.)

East Indies, China, New Zealand.

Genus Amblyapistus Bleeker

Amblyapistus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, pp. 5, 70, 1876. (Type Apistus taenianotus Cuvier, orthotypic.)

Platypterus (not Cuvier) Swainson, Nat. Hist. Animals, vol. 2, p. 265, 1839. (Type Apistus taenianotus Cuvier, designated by Bleeker, op. cit., p. 70.)

more evenly curves anterior profile of the head; longer posterior dorsal and anal rays and larger scales. Moreover there are no distinct black spots at the bases of the last dorsal and anal rays.

Body elongate, compressed. Head moderate, obtuse or obliquely truncate, without spiniferous crests above. Snout short. Eye advanced, in first half of head. Mouth cleft short. Maxillary extends below eye. Teeth in jaws, on vomer and palatines. Branchiostegals 5. Scales on body, small. Preorbital with 2 spines below, preopercular spines 3 to 5, opercular 2. Dorsals continuous, with 15 to 17 spines, beginning before eye on front of head, rays 7 to 10. Anal with 3 spines and 5 to 8 rays. Caudal rounded, median rays longest. Pectoral rounded, without free rays. Ventral

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. with spine and 5. rays .

Analysis of Fishes

a.' Front of head not white.

b.' Pectoral rays simple. macracanthus.

b.² Pectoral rays divided.

c.' Second and third dorsal spines shorter than head. taenianotus.

c.² Second and third dorsal longer than head. marleyi.

a.² Front of head white. albifrons.

Amblyapistus macracanthus (Bleeker)

Apistus macracanthus Bleeker, Nat. Tydsr. Ned. Indie, vol. 3, p. 267, 1852 (type locality, Wahai, northern Ceram).

Tetraroge macracanthus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 133, 1860 (copied).

Amblyapistus macracanthus Day, Fishes of India, pt. 1, p. 158, pl. 38, fig. 3, 1875 (Andamans). — Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, pl. 1, fig. 1, 1876 (Batjan; Ceram). — Day, Fauna British India, vol. 2, p. 68, fig. 27, 1889. — Peters, Monatsber. Akad. Wiss. Berlin, p. 834, 1876 (1877) (Atapupu, Timor).

Harpurina new subgenus.

Type Hepatus nubilus new species.

Front profile of body evenly curved. Teeth small, crenulated, in a stripe. Mouth small, with very slight cleft laterally. Scales large, compact, closely imbricated. Lateral line concurrent with dorsal profile. Dorsal spines in reduced number, but 6 or 7 developed, though of normal size. Posterior dorsal and anal rays longest. Caudal deeply emarginate. Pectoral fins longest than head. Caudal spine long.

A single species, readily known among the typical Hepatids by its reduced dorsal spines, etc.

(Harpurus, an old name for Hepatus.)

Hepatus nubilus new species.

1470

depth 2 7/8; head 3 1/8. Snout 5 1/2 in head from snout tip; eye 3 1/8, greater than snout, 3/4 of a diameter apart; maxillary reaches 1/3 in eye, length 3 1/5 in head from snout tip; teeth in villiform bands in jaws, on vomer and palatines; no barbels; preorbital with 2 strong, sharp spines; 5 spines along angle and vertical limb of preopercle, upper sharp and strongest; opercle with 2 spines.

A few small scales imbedded in skin on body.

D. XV or XVI, 9 or 10, spinous fin begins before eyes, second spine slightly longer than head or 3 in fish without caudal, sixth ray 1 1/4 in total head length; A. III, 8, third spine 2 1/2, sixth

ray 1 1/4; caudal 1, pointed, its lower border truncated; least depth of caudal peduncle 3; pectoral 2 9/10 in fish without caudal, rays 12; ventrial rays I, 5, fin 1 1/2 in total head length.

Brownish black. Pectoral with white border. Length 75 mm. (day.)

Andamans, East Indies.

Amblyapistus taenianotus (Cuvier)

Apistes taenianotus Cuvier, Règne Animal, ed. 2, vol. 2, p. 168, 1828 (on Lacépède).

Apistes taenianotus Cuvier, Hist. Nat. Poiss., vol. 4, p. 404, 1829 (type). — Richardson, Voy. Samarang, Fish, p. 35, pl. 4, figs. 1–2, 18 ( ). — Bianconi, Spec. Zool. Mossambique, p. 219, 1850. — Bleeker, Nat. Tijds. Ned. Indië, vol. 3, p. 557 (546), 1852 (Amboina); ~~Act. Soc. Sci. Ind. Neerl. (Verh. Bijd. Celebes), vol. 8, p. 32, 1860.~~ vol. 4, p. 92, 1853 (Amboina); Verh. Batavia. Genoots. (Nat. Ichth. Japan), vol. 25, p. 12, 1853 (reference);

20119. Taluqan Bay, Palawan Island.
December 28, 1908. Length 115 mm.

6974. West coast of Tabtan Island.
November 8, 1908. Length 173 mm.

7 examples. Apra Bay, Guam.
November 19 to 21, 1907. Length 95 to 145 mm.
These are all typical of the species.
Must have a dark longitudinal line
or streak from lower side of chin,
back until nearly over vent or anal
in some cases, though often not much
behind ventral bases.

Nat. Tijds. Ned. Indie, vol. 6, p. 457, 1854 (Amboina); vol. 12, p. 193, 1856 (Ternate); Act. Soc. Sci. Ind. Neerl., vol. 1, No. 5, p. 5, 1856 (Amboina); vol. 2, No. 7, p. 4, 1857 (Amboina); vol. 3, No. 4, p. 3, 1857–58 (Manado); Act. Soc. Sci. Ind. Neerl. (Verh. Bijd. Celebes), vol. 8, p. 32, 1860.

1440

2 examples. Philippines. Length 180 to 182 mm.

5896. Polloc, Mindanao. May 23, 1908. Length 216 mm.

5758 and 5759. Point Capurnuypugan, ~~Port Lapurnuypugan~~, Mindanao. May 10, 1908. Length 210 to 218 mm.

5082. Puyada, Mindanao. May 15, 1908. Length 193 mm.

9242, 12591, 15647. Rapu Rapu Island. June 22, 1909. Length 125 to 205 mm.

Platypterus taenianotus Swainson, Nat. Hist. Animals, vol. 2, p. 265, 1839 (on Cuvier and Lacépède).

Tetraroge taenianotus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 136, 1860 (Japan; Madras). —— Schmeltz, Cat. Mus. Godeffroy, No. 4, p. 16, 1869 (Kandavu).

depth 1 4/5 to 1 7/8; head 4 to 4 1/5, width 1 3/5 to 1 2/3. Snout 1 3/5 to 1 2/3; eye 3 to 3 1/3, 1 7/8 to 2 in snout, 1 1/5 to 1 2/5 in interorbital; teeth 20 to 22 in jaws, small, inconspicuous; maxillary 3 2/3 to 3 3/4 in head; interorbital 2 1/4 to 2 1/3, convexly elevated; preopercle flange and opercle with few coarse striae, inconspicuous, more numerous, though coarse on humeral arch. Gill-rakers 4? + 14, very short flexible points.

Scales large, broadly ovate, with very fine numerous circuli; 33 or 34 weak apical denticles, ~~7 to~~ 9 transverse series of basal elements, often as more or less distinct cusps.

D. VI or VII, 27, I, last spine 1 2/5 to 1 4/5 in head, eighteenth ray 3 4/5 to 4 2/3 in combined head and body; A. III, 23, I or 24, I, third spine 1 2/3 to 1 7/8 in head, sixteenth ray 1 to 1 1/8; caudal deeply emarginate, lobate, 2 1/2 to 2 2/3 in combined head and body; least depth of caudal peduncle 1 3/4 to 1 4/5 in head; pectoral 3 1/4 to 3 1/3 in combined head and body; ventral 3 3/4 to 4; caudal spine 2 1/3 to 2 1/8 in head.

Largely dull dark brown with dusky over vertical fins and ventrals, pectorals with more brownish tinge. Dries brown.

This species, known only from the specimens listed below resembles Hepatus lineolatus but is at once distinguished aside from its fewer dorsal spines, by its

Amblyapistus taenianotus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, No. 2, p. 71, pl. 4, fig. 4, 1876 (Celebes, Ternate, Amboina, Ceram, Philippines). — Day, Fishes of India, part 1, p. 157, pl. 38, fig. 5, 1875 (Andamans); Fauna British India, vol. 2, p. 67, 1889. — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 378, 1905 (reference). — Seale, Occas. Pap. Bishop Mus., vol. 4, No. 1, p. 83, 1906 (Shortland Island, Volcanos). — Weber, Siboga Exped., vol. 65, Fische, p. 498, 1913 (Biaru Island, Karakelang Island, Amboina, Naman). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 917, Oct. 1927 (Mozambique). —

55337 U.S.N.M. Hilo. Albatross Collection. Length 32 to 53 mm. 13 examples.

55338 U.S.N.M. Leeward. Albatross Collection. Length 37 mm.

55339 U.S.N.M. Honolulu. Albatross Collection. Length 127 to 146 mm. 3 examples.

55340 U.S.N.M. Laysan Island.

Length 168 mm.

55343 U.S.N.M. Pualoa Bay, Hawaii.

Length 33 to 41 mm. 5 examples.

55341 U.S.N.M. Laysan Island.

Length 93 to 180 mm. 2 examples.

55466 U.S.N.M. Honolulu. Dr. D.P. Jenkins.

Length 87 to 92 mm. 2 examples.

63664 U.S.N.M. Locality?

Length 190 mm.

78083 U.S.N.M. Hawaii. 1904.

Length 32 to 68 mm. 19 examples.

78084 U.S.N.M. Kailua. Bureau of Fisheries. Length 33 to 52 mm. 4 examples.

1476

Fowler, Mem. Bishop Mus., vol. 10, p. 296, 1928 (Shortland Island); Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 77, fig. 19, April 30, 1934 (den Pasar, Bali).

38287 U.S.N.M. Honolulu. Dr. W.H. Jones. Length 32 to 38 mm. 3 examples.

51053 U.S.N.M. Hawaii.

Length 187 mm.

55015 U.S.N.M. Puako Bay, Hawaii. Albatross Collection. Length 175 mm.

55113 U.S.N.M. Puako Bay, Hawaii. Albatross Collection. Length 170 mm.

55150 U.S.N.M. Hanalei Bay, Kauai. Albatross Collection. Length 28 to 48 mm. 6 examples.

55215 U.S.N.M. Kapili. Bureau of Fisheries 1902. Length 31 to 67 mm. 48 examples.

55333 U.S.N.M. Honolulu reef.

Length 135 mm.

55335 U.S.N.M. Honolulu Pool, Hilo. Bureau of Fisheries 1901. Length 32 to 38 mm. 6 examples.

55336 U.S.N.M. Waialua Bay, Oahu. Bureau of Fisheries 1902. Length 32 to 43 mm. 14 examples.

55334 U.S.N.M. Hanalei Bay. Length 187 mm.

Taenianotus latovittatus (part)
Lacépède, Hist. Nat. Poiss., vol. 4,
pp. 303, 304, pl. 3, fig. 2, 1802
(not description) (type locality,
Mauritius).

Apistus binotatus: Peters, Archiv
Naturges., vol. 21, pt. 1, p. 241, 1855
(type locality, Mozambique).
Tetraroge binotata Günther, Cat.
Fish. Brit. Mus., vol. 2, p. 134, 1860
(copied).

(66056 U.S.N.M. Fakarava. Albatross Collection 1899. Length 31 mm. 1093

66055 U.S.N.M. Jaluit, Marshalls.
Albatross Collection. Length 58 mm.

66057 U.S.N.M. Arno Atoll. Albatross Collection 1900. Length 25 mm.

71561 U.S.N.M. Hafa, Akaniawa.
Albatross Collection 1906. Length 112 mm.

71669 U.S.N.M. Hafa. Albatross
Collection 1906. Length 45 to 163 mm.
4 examples.

72170 U.S.N.M. Fuga Island. R.C.
McGregor. Length 132 mm.

72258 U.S.N.M. Cagayancello. R.C.
McGregor. Length 140 mm.

The following are all the Hawaiian
or tonduzcensis form:

5698 U.S.N.M. Hawaiian Islands. William
Stimpson. Length 182 to 190 mm. 2 examples.

15398 U.S.N.M. Honolulu Harbor. Dr. J. H.
Streets. Length 32 to 123 mm. 27 examples.

26820 U.S.N.M. Johnston Island.
Length 175 mm.

Tetraroge crista-galli Günther, Cat. Fish. Brit. Mus., vol. 2, p. 134, 1860 (type locality, Philippines).

(Amblyapistus crista-galli Jordan and Richardson, Philippine Journ. Sci., p. 52, 1910 (reference). — Herre, Fishes Philippine Exped., p. 65, 1931 (1934) (Lumaguete).

— Luncker and Mohr, Mitteil. Naturh. Mus. Hamburg, vol. 44, p. 70, 1931. (Dörper Point, Southeast Bay, New Guinea). — Fowler, Mem. Bishop Mus., vol. 11, no. 6, p. 431, 1934 (reference).

The following are in the general series typical of Hepatus trioostegus:

19234 U.S.N.M. Fanning Islands. Dr. J. H. Streets. Length 98 mm.

30550 U.S.N.M. New Guinea. Australian museum. Length 180 mm.

30587 U.S.N.M. New Guinea. Australian museum. Length 153 mm.

32689 U.S.N.M. Indian Archipelago. Leiden museum. Length 160 mm. (2 examples.

43941 U.S.N.M. Mauritius. Colonel Nicholas Pike. Length 78 to 177 mm.

45065 U.S.N.M. Tahiti. British museum. Length 52 mm.

45086 U.S.N.M. Samoa. Lord Lilford. Length 112 to 142 mm. 4 examples.

47874 U.S.N.M. Bougainville Islands. Australian museum. Length 120 to 145 mm. 2 examples.

50757 U.S.N.M. Okinawa, Riu Kiu. Messrs. Jordan and Snyder. Length 210 to 217 mm. 2 examples.

52341 U.S.N.M. Apia, Samoa. Bureau of Fisheries. Length 32 to 168 mm. 8 examples.

65614 U.S.N.M. Inungarehva. Albatross Collection. Length 31 to 34 mm. 5 examples.

Depth 2 3/4; head 3, width 1 3/5. Snout 4 in head from snout tip; eye 2 1/2, greatly exceeds snout or interorbital; maxillary reaches eye, expansion 2 in eye, length 3 in head from snout tip; bands of very fine villiform teeth in jaws, on vomer and palatines; interorbital 5, evenly convex. Preopercle edge with 5 spines, uppermost largest and others gradually smaller, so that lower 4 only show tubercles; 2 strong spines on preopercle. Gill rakers 0+4, low tubercles, greatly shorter than gill filaments, which 1/2 of eye.

Scales 78 closely along lateral line to caudal base; tubular scales 30+3 in lateral line; 12 above, 26 below. Scales firmly

1480

adherent, small and only few on caudal base. Head largely naked, except few above posteriorly. Scales with 2 or 3 basal radiating striae; apically little rough, not denticulate; circuli moderate.

D. XVII, 7, I, origin opposite front eye edge, first spine 1/4 of second, which longest or equals total head, fifth to last spines subequal, fifth ray 1 1/5 in total head; A. III, 5, I, third spine equals soft rays, third ray 1 1/3; caudal I, ends in median point behind; least depth of caudal peduncle 3 1/3; pectoral I, broad, rays I, 11; ventral rays I, 5, spine 1 1/2 in fin, which 1 1/4 in head.

Dull chocolate brown. Obscure pale rings, blotches and spots on

vertical fins, which also dusky, terminally with narrow whitish edge, & dried fins dusky brown, especially terminally, with narrow white edges.

Mozambique, Mauritius, Andamans, India, East Indies, Philippines, Melanesia, Polynesia.

1482

Amblyapistus marleyi Regan

Amblyapistus marleyi Regan, Ann. durban Mus., vol. 2, part 4, p. 202, text-fig. 5, Oct. 20, 1919 (type locality, durban, Natal). — Barnard, Ann. South African Mus.; vol. 21, pt. 2, p. 917, Oct. 1927 (Natal). — J. L. B. Smith, Rec. Albany Mus. Grahamstown, vol. 4, p. 156, 1931

— Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 486, 1934 (Natal).

78085 U.S.N.M. Kailua. Bureau of Fisheries. Length 32 to 38 mm. 10 examples.

78086 U.S.N.M. Hilo. Bureau of Fisheries. Length 35 mm.

78089 U.S.N.M. Hilo. Bureau of Fisheries. Length 28 to 30 mm. 8 examples.

84084 U.S.N.M. Hawaii. Length 117 mm.

Depth 2 2/3; head 3, width 1 2/3. Snout 4 1/8 in head; orbit 3 1/8; eye 4, 1 1/8 in snout & eye, greater than interorbital; maxillary reaches 1/4 in eye, length 3 2/5 in head from snout tip; interorbital 5 3/4, convex, profile nearly vertical; preopercular spine long as eye, and subopercular spine slightly longer. Gill rakers 3+4, low, finely asperous plates; gill filaments 1/2 of eye.

Scales small, cycloid and imbedded. Tubes 27 in lateral line & caudal base.

D. XV, 10, first spine inserted before front of eye, its length 2 4/5 in head; fifth spine 1 4/5, fourth ray 1; A. III, 5, I, third spine 1 2/5, third ray 1; least depth of caudal pedencle 2 1/2;

second dorsal spine 2 3/4 in
combined head and body to
caudal base; caudal 2 3/4,
obtusely convex behind; pectoral
2 1/3 in head; ventral 2 7/8.

Dark brown, clouded with
darker or as 3 blackish brown
blotches along back and reflected
on fins. Caudal also clouded
with blackish and paired fins
mostly with blackish cloudings.
Iris dark neutral gray.

South Africa.

A. N. S. P., one example. Natal.
1932. H. W. Bell Marley. Length
153 mm.

1485

Amblyapistus albifrons (Duncker and Mohr)

Tetraroge albifrons Duncker and Mohr, Naturh. Mus. Hamburg, Mitteil. vol. 44, p. 70, 1931 (type locality, East Coast, Langemak Bay, New Guinea; Dörper Point, South East Bay). — Fowler, Mem. Bishop Mus., vol. 11, no. 6, p. 431. 1934 (reference).

Depth 3 1/2; head 3. Snout, eye and interorbital equal. None of scales at small ~~pointed~~ papillae, but indicated at weak points. D. XIII, 8. A. III, 5. Pectoral rays 12. Ventral rays I, 5. Body gray brown with dark brown blotches and cloudings, edges of all fins whitish. Broad pale white band on front of head, before dorsal origin. Also both lips equally broadly white in front, likewise small part of barbel. Membrane of unpaired fin hyaline, spines with pale pigment. Length 63 mm. (Dunckar and Mohr.)

New Guinea. In larger specimen described profile little convex, dorsal begins over hind edge of eye, no barbel on under lip, and

the unpaired fins are pigmented as well as body. In the smaller specimen the profile is erect, the dorsal begins over middle of eye and the underlip has a pair of short barbels.

1488.

Genus Lysodermus Smith and Pope

Lysodermus Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, p. 483, 1906. (Type Lysodermus saturnus Smith and Pope, orthotypic.)

Body elongately ovoid, compressed. Head moderate, compressed. Snout moderate, well inclined. Eye high, median in head. Mouth rather large, lower jaw protruding, low, little inclined. Maxillary reaches opposite front of eye, little expanded. Teeth villiform, in jaws and on vomer, none on palatines. Head rough with spines and ridges; preorbital

March 9, 1909. Length 378 mm. Olive gray, with narrow brownish vertical stripes breaking into dots below. Belly pale, purplish on upper breast. Stripes on lower head. Opercular flap white. Dorsal and anal purplish on edge, few blotches below. Caudal whitish.

22858. Gomamo Island. December 3, 1909. Length 170 mm.

14430 and 14431. Gubat, Sorgoson, Luzon. June 23, 1909. Length 145 to 150 mm.

22918. Kalano Point. December 14, 1909. Length 58 mm. Without trace of hump on snout. Hind caudal edge narrowly white.

spines 2, 5-preopercular and upper longest, and 2 concealed opercular spines. Gill membranes united with isthmus. Gill rakers short, few. A short slit behind last gill arch. Gill rakers short and few. Skin soft, lax, with minute rudimentary scales. Lips papillose. Lower jaw with fleshy tentacles. Dorsal fin single, begins behind head, with 7 stiff spines and numerous soft rays. Anal with 2 concealed spines. Caudal edge slightly convex and like other vertical fins all but tips of rays covered. Pectoral with lower free ray long. Ventral joined to abdomen by thick fold of skin.

Japan.

Lysodermus satsumae Smith and Pope

Lysodermus satsumae Smith and Pope, Proc. U. S. Nat. Mus., vol. 31, p. 487, fig. 7, 1906 (type locality, Kagoshima, Japan). — Jordan, Tanaka, Snyder, Journ. College Sci., Tokyo, vol. 33, article 1, p. 240, fig. 181, 1913 (reference).

side of abdomen alma anal base spotted. Bright blue or purple bands from above snout tip backward under eye and upward on postocular. Purplish on lips, about gill opening and pectoral base. Dorsal brownish, purplish margin becoming slaty. Anal like dorsal only slightly paler, broken band along base becoming bluish. Caudal more or less olive terminally. Pectoral rays dull violet blacks, membranes partly hyaline. Ventral pale brown or olive.

A 735. Danawan Island. September 27, 1909. Length 243 mm.

8234. Galvaney Island, Ragay Gulf.

Depth 3 1/4; head 2 3/5, width 1 1/2. Snout to eye 2 2/3 in head; eye 6, 2 1/8 in snout, 1 1/4 in interorbital; orbit 4 4/5 in head, 1 3/4 in snout; maxillary reaches opposite front edge of orbit, expansion 1/2 in orbit; length 2 2/5 in head from snout tip; teeth fine, in villiform bands in jaws, none on palatines; interorbital 4 4/5, deeply concave. Gill rakers 5+9, robust, compressed, 1 3/4 in gill filaments, which 1/2 of orbit. Head with surfaces of bones all rugosely roughened. Nuchal spines broadly triangular; larger and more pointed tympanic; 5 preopercular spines, second continuous with ridge of suborbital stay, long at orbit; 2 preorbital spines, lower larger and directed back, long at eye.

1492

Skin smooth and flabby to touch, contains numerous, imbedded, obsolete scales, envelops all fins more or less to their tips. Lateral line complete, slightly more arched than vertebral axis of body.

D. VII, 12, second spine 3 in total head length, sixth ray 2; A. II, 9, first ray 3; caudal 1 2/5; hind edge convex; least depth of caudal peduncle 4; pectoral 1 1/6, rays 11+1; ventral rays I, 5, fin 1 2/5 in total head length.

Back light brownish, sides and below whitish. Oblique brown bands on back anteriorly less inclined, from dorsal down to middle of side where more or less fused. Black blotch on membrane terminally behind tip

of each dorsal spine and black blotch at upper front margin of soft fin. Caudal with blackish brown subterminal cross band and narrower one subbasal. Pectoral blackish brown marginally and with 3 or 4 obscure transverse blackish bars. Ventral and anal blackish marginally.

Japan.

U. S. N. M., No. 55615. Kagoshima. In 2 or 3 fathoms. June 16, 1903. H. M. Smith. Length 139 mm. Type.

Genus Minous Cuvier.

Minous Cuvier, Hist. Nat. Poiss., vol. 4, p. [420] 311, 1829. (Type Minous woora Cuvier = Apistes minous Cuvier, tautotypic.) (Minois Hübner 1816, in Lepidoptera, not involved.)

Corythobatus Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, p. 1027, 1849 (1850). (Type Minous woora Cuvier, virtually as Corythobatus Cantor proposed to replace Minous Cuvier.)

Decterias Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 154, 1904. (Type Minous pusillus Schlegel, monotypic.)

Tetrao

~~Dicaeothorax~~ Lourne (Lesson).

Primnurus Lourne Lesson, Voy. Coquille, Zool., tome 2 (1), 1830, p. 151. Matavai Bay, Tahiti.

Hasens Vlamingii Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. ~~416~~ 293. Moluccas. — Bleeker, Nat. Tijds. Ned. Indië, deel 4, 1853, p. 472 (Batavia); deel 18, 1859, p. 354 (Bawean). — Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 1, no. 3, 1856, p. 9 (Macassar). — Günther, Journ. Mus. Godeffroy, band 4, 1875, p. 123, plate 81 (Bonham Island, Ameiteum, Eboon Island, Ceram). — Alcock, Journ. Asiat. Soc. Bengal, vol. 65, pt. 2, 1896, p. 315 (off Minnikoy Island, Laccadives). — Weber, Siboga Exped., band ~~65~~ 57, 1913, p. 320 (Insa Lauut).

Hasens tuberosus (non Lacépède) Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 353 (Ceram and Ameiteum).

Body elongately ovoid, compressed. Head moderate, pointed. Snout moderate or short. Eye elevated to upper profile, advanced or in front half of head. Maxillary reaches below eye. Mouth inclined moderate or small. Teeth small, in bands in jaws and on vomer, none on palatines. Branchiostegals 7. Head with rough crests above. Preorbital with 2 diverging spines, preopercular 4 or 5, opercular 2. Groove across occiput. Pyloric appendages 4. Skin smooth, scaleless. Lower jaw with slender cirri. Dorsal single, spines and rays equally numerous or 9 & 12, inserted above opercle. Anal with 1 or 2 flexible short spines, and 9 rays. Pectoral with detached free ray. Ventral moderate.

Indo-Pacific.

Minous Cuvier. 1502

Analysis of Species

a'. Minous. Pectoral long as head or but slightly longer.

b'. Head with feeble armature, not rough with sharp keels and spines on upper surface; preopercle limb with barbel.

c'. D. XI, 12; A. II, 10. trachycephalus.

c.² D. IX, 9; A. III, 7. inermis.

b'. Head with strong, rough armature above.

d'. Soft dorsal rays 10 or 11.

e'. Eye 3 1/5 to 3 1/2 in head. pusillus.

e.² Eye 3 7/8 to 4 in head. oxycephalus.

e.³ Eye 4 2/5 to 4 4/5 in head.

f'. Depth 2 2/3 to 2 3/4; head 2 1/3 to 2 2/5.

g'. Interorbital 4 1/5 to 4 1/2 in head. monodactylus.

g.² Interorbital 4 9/10 in head. versicolor.

f.² Depth 3 1/5; head 2 2/5. frictus.

1503

d.^{2} Soft dorsal rays 12.

h.^{1} Eye 3 in head. cocineus).

h.^{2} Eye 3 1/2 in head. superciliosus.

a.^{2} Pterominous new subgenus. Pectoral reaches nearly to caudal base, or half length of fish without caudal. longipinnis.

Lloyd

1504

Minous trachycephalus (Bleeker)

Aploactis trachycephalus Bleeker, Nat. Tijds. Ned. Indie, vol. 7, p. 451, 1854 (type locality, Manado); vol. 12, p. 213, 1856 (Nias); Act. Soc. Sci. Ind. Neerl., vol. 1, No. 5, p. 5, 1856 (Amboina).

Minous trachycephalus Günther, Cat. Fish. Brit. Mus., vol. 2, p. 149, 1860 (copied). — Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, No. 2, p. 62, pl. 2, fig. 3, 1876 (Nias, Celebes, Amboina). — Alcock, Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 313, 1894 (off Malabar Coast, in 45 fathoms). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, p. 63, 1922 (Takao, Formosa).

brownish spots. From shoulder downward behind pectoral and ventral paler, becoming silvery to gray below; breast and region in front black. Iris dark. Dorsal body color, exposed edge of spines bluish. Four verticals dusky. Anal like dorsal. Pectoral dusky, upper edge black. Ventral with first spine and ray blackish, inner spine and rays with yellowish terminally.

6154 and 6155. Iranalag, Mindanao. June 4, 1908. Length 195 to 208 mm.

14345. Matnog Bay. March 31, 1909. Length 205 mm.

8354. Inarcielagos Bay, Mindanao. August 21, 1909. Length 190 mm.

8210, 15856 and 15857. Pagapas Bay, Luzon. February 20, 1909. Length 185 to 200 mm.

14650. Parang, Mindanao. May 23, 1908. Length 188 mm.

1505

Depth 3; head 2 1/8, width 1 3/4. Snout 2 5/6 in head from upper jaw tip; eye 4 2/5, 1 3/5 in snout, greater than interorbital; orbit 3 7/8 in head from snout tip; maxillary reaches orbit, expansion 1 1/6 in eye, length 2 1/6 in head from snout tip; bands of fine villiform teeth in jaws, none on palate; interorbital 5 1/6, 1 1/4 in orbit, deeply concave, supraorbital edge rather rough. Gill rakers 3+7, clavate, equal gill filaments or 2 1/2 in eye. Posterior preorbital spine 2 in eye; preopercular spine 1 2/3; with 3 broadly angular spines below.

Skin smooth. Ridges of armature of head all rough and knobbed. Several short filaments on mandible.

D. IX, 9, second spine 3 2/5 in

1506

total head, soft dorsal height 2 1/8; A. III, 7, soft fin height 2 1/4; caudal 1 1/2, slightly convex behind; least depth of caudal peduncle 4 2/3; pectoral 1 1/4, rays I, 10+1, free ray 1 3/5 in head; ventral 1 1/2, rays I, 5.

Back brown, marked with obscure or pale blotches and markings or darker blotches. Under surface whitish, dusted with dots of drab or ecru, especially on sides of head. Fins dark terminally. Paired fins and anal fuscous black. Caudal brownish, little paler basally.

India, East Indies, Formosa.

U. S. N. M., No. 76650. Takao, Formosa. Dr. Fred Baker. Length 60 mm.

1507

D. 5442. San Fernando Point Light, N. 39° E., 8.4 miles (N. Lat. 16°30'36", E. long. 120°11'6"), west coast of Luzon. In 45 fathoms. May 10, 1909. Length 31 to 54 mm. Seven examples.

1508

Leiognathus inermis Alcock

Leiognathus inermis Alcock, Journ. Asiatic Soc. Bengal, vol. 58, pt. 2, p. 299, pl. 22, fig. 4, 1889 (type locality, East of the Sacramento shoal on the Godávari coast, Bengal Bay); Ann. Mag. Nat. Hist., London, ser. 6, vol. 10, p. 213, Sep. 1892 (reference); Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 314, 1894 (reference); Illustrat. Investigator, Fishes, pt. 5, pl. 18, fig. 3, 1898; Cat. Deep Sea Fishes Indian Mus., p. 30, 1899 (off Coromandel and Malabar, 45 & 148 fathoms).

7408. Port Elson, west of Pinas Island. December 17, 1908. Length 230 mm.

8784 and 8788. Luinalasag Island. June 12, 1909. Length 265 ~~to~~ 278 mm.

22900 [498]. Romblon reef. March 26, 1908. Length 103 mm. Lemon yellow to olive with about 4 obscure dusky bars irregularly. Side of head, breast, and shoulder and along anal base with small round blue spots. Fins like body color.

5586 and 5587. San Miguel Harbor, Tigao Island. April 21, 1908. Length 205 to 215 mm.

9126. San Roque, Leyte Island. July 29, 1909. Length 285 mm.

16685. Surigao, Mindanao. ~~March~~ May 8, 1908. Length 203 mm.

A1407. Tampotana Island. December 21, 1909. Length 248 mm.

1509

depth 3; head 2 1/8. Snout 3 in head; eye 3 4/5; 1 1/4 in snout, subequal with interorbital; maxillary reaches 1/2 in eye; expansion 1 3/4 in eye, length 2 1/4 in head; villiform teeth in barbel at middle of ramus of lower jaw; jaws and on palatines; interorbital hardly narrower than eye, traversed by ridges. Gill rakers short, somewhat club-shaped.

Upper margin of orbit eroded and crenate; top of head eroded; 2 eroded and crenate ridges on occiput; 1 or either postorbital ridges; preorbital with 2 divergent spines on its edge; preopercle with large and short spine at angle and some dentations along its lower edge; ~~suborbit~~ preop[illegible] circular stay crenate; opercle with 2 weak stays hardly projecting

as spines.

Head thin, without scales, invests all fins. Lateral line as 17 or 18 tubular papillae.

D. XI, 12, origin over preopercle, third spine $3\frac{1}{10}$ in head, first ray $2\frac{2}{5}$; A. II, 10, sixth ray $2\frac{1}{10}$; caudal $1\frac{1}{3}$, convex behind; depth of caudal peduncle 5; pectoral 1, rays 11, I; ventral rays I, 5; fin $1\frac{3}{4}$ in head.

Rose red with white and gray mottlings and minute black dots. Throat and barbels white. Anal and paired fins edged with black, hind surface of pectoral with small light spots. Length 113 mm. (Alcock.)

India.

Minous pusillus Schlegel

Minous pusillus Schlegel, Fauna Japonica, Pois., pts. 2-4, p. 50, 1843 (type locality, Seas of Japan). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 149, 1860 (copied). — Steindachner and Döderlein, Denks. Akad. Wiss. Wien, math.-naturw. Kl., vol. 49, pt. 1, p. 197, 1885 (Kagoshima). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 100, 1901 (~~Hayamakiji~~ reference).

8594 and 8599. Inatnog Bay. May 31, 1909. Length 250 to 353 mm.

8755 and 8756. Tarangpong Island. June 10, 1909. Length 358 to 426 mm.

7090. Fort San Pio Quinto. November 11, 1908. Length 560 mm.

8779. Quinalasag Island. June 12, 1909. Length 275 mm.

6901. Santo Domingo Batan. November 7, 1908. Length 560 mm.

30545 U. S. N. M. New Guinea. Australian Museum. Length 208 mm.

43940 U. S. N. M. Mauritius. Colonel Nicholas Pike. Length 230 to 320 mm. 3 examples.

Decterias pusillus Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 154, fig. 15, 1904 (Wakanoura). — Jordan and Starks, Bull. Bur. Fisher., vol. 26, p. , 1906 (Panay). — Jordan and Richardson, Philippine Journ. Sci., vol. , p. 52, 1910 (reference).

8934. Atulayan Island, Luzon Gulf. June 18, 1909. Length 367 mm.

9283. Basot Island, Pocket Bay. June 11, 1909. Length 203 mm.

8556. Bolinao. May 10, 1909. Length 558 mm.

7203. Cabugan, Hinunangan Bay, Leyte. July 30, 1909. Length 208 mm.

8768. Lahuy Island. June 11, 1909. Length 245 mm.

9030. Langao Point, Luzon. June 24, 1909. Length 267 mm.

8841. Maculabo Island. June 14, 1909. Length 285 mm.

9081 and 9082. Tralhon Island. July 27, 1909. Length 227 to 320 mm.

depth 3 1/8 to 3 1/5; head 2 1/3 to 2 2/5, width 1 3/5 to 1 3/4. Snout 2 2/5 to 3 in head; eye 3 4/5 to 4 1/4, 1 1/4 to 1 2/3 in snout, greatly exceeds interorbital; orbit 3 1/5 to 3 1/2 in head from snout tip; maxillary reaches 1/4 to 1/2 in eye, expansion 1 1/4 to 1 4/5 in eye, length 2 to 2 1/6 in head; teeth fine, villiform, in narrow bands in jaws, on vomer and palatines; interorbital 4 3/5 to 5 1/8, deeply concave. Gill rakers 3+10, low finely asperous knobs, 3/4 of gill filaments which 3 in eye. Two or 3 short nasal spines each side; upper orbital edge serrate; rather transverse deep depression at occiput; pair of occipital spines and large pair of nuchals, also small spine close below their interval of

separation; 2 postocular spines, keeled ridge of each serrate; small spine at suprascapula; 2 broad preorbital spines, directed downward; ridge of suborbital stay serrated; 5 preopercular spines, uppermost longest.

Skin smooth. Two filaments on each mandibular ramus, posterior longer; 1 low and behind maxillary expansion.

D. IX or X, 10 or 11, third spine 2 to 2 1/5 in head, first ray 2 2/5 to 2 3/5; A. 9 or 10, third ray 2 3/5 to 2 3/4; caudal 1 2/5 to 1 2/3, rounded behind; least depth of caudal peduncle 3 3/4 to 4 1/3; pectoral 1 1/8 to 1 2/5, rays I, 9+1; ventral I, 5, fin 1 1/2 to 1 4/5 in total head length.

Brown above, whitish below.

Back mottled or variegated with darker, sometimes forming several darks blotches. Iris gray. Spinous dorsal with black basally in front and posteriorly. Soft dorsal pale, with some brownish inclined streaks and dark or blackish spot posteriorly. Anal whitish, with dark brown submargin. Caudal pale or whitish, with 6 or 7 transverse series of dark brown spots on each ray. Pectoral largely blackish, pale basally and on lower ray. Ventral blackish terminally, whitish basally.

Japan.

U. S. N. M., No. 59710. Kagoshima.
Dr. H. M. Smith. Length 55 mm.
U. S. N. M., No. 59711. Susaki.
Dr. H. M. Smith. Length 55 mm.
U. S. N. M., No. 75921. Japan?
P. L. Jouy. Length 57 and 58 mm.
Two example.

1517

Minous oxycephalus Bleeker

Minous oxycephalus Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 65, pl. 1, fig. 2, 1876 (type locality, Padang; Priaman; Amboina).

Minous woora (not Cuvier) Bleeker, Nat. Tijds. Ned. Indie, vol. 4, p. 251, 1853 (Priaman, Sumatra).

Corythobatus monodactylus Bleeker, Ned. Tijds. Dierk., vol. 2, p. 286, 1865 (Amboina).

8001. Port Bamalacan, Marinduque.
February 23, 1909. Length 268 mm.
Generally cadmium yellow, dusky orange
on anterior and middle of body.
Numerous blue spots on head, upper
half of body anteriorly, breast, belly
and along anal base; few on caudal
peduncle at caudal base and row
on each of last 3 or 4 anal spines;
spots on head larger than those on body;
none on fins, except as noted.

8181. Port Busin, Burias Island.
March 7, 1909. Length 220 mm.

14371.
7380, Port Caltoms, Busuanga Island.
December 15, 1908. Length 133 and 245 mm.

6376. Port Jamelo. July 13, 1908. Length
242 mm.

10481. Port Maricaban. ~~Tamaco Island~~
July 21, 1908. Length 138 mm.

1518

Depth 3 1/4; head 2 2/5, width 1 2/3.
Snout 2 9/10 in head from snout tip; eye 3 7/8 to 4, 1 1/5 in snout, ~~equal or greater than~~ interorbital; maxillary reaches 1/4 in eye, length 2 in head from snout tip; bands of fine teeth in jaws and on V-form band on vomer; interorbital 3/4 of eye or 4 in head, concave.

Pair of obtuse nasal spines; quadrate depression at vertex or occiput smooth; orbit with prominent, numerous, rough denticles; 2 preorbital spines, upper much longer or equals eye; ridge of suborbital stay denticulated, ends in large spine behind; barbel, less than eye on lower side of mandible;

2 divergent opercular spines.

Lateral line complete, axial along side of body.

D. X, 10 or 11, third spine 2 9/10 in total head length, third ray 2; A. II, 9, third ray 2 3/5; caudal = 1 1/3, convex behind; depth of caudal peduncle 4; pectoral 1 1/6, rays 11, I; ventral rays I, 5, length 1 3/4 in total head = length.

Above brownish, below pale or rosy. Iris rose. Body with longitudinal brown bands more or less clouded. ~~Dorsal~~ Fins rosy. Pectoral blackish terminally, anal and ventral similar. Caudal with some dark transverse bars. Length 91 mm. (Bleeker.)

East Indies.

Minous monodactylus (Schneider

Scorpaena monodactyla Schneider, Syst. Ichth. Bloch, p. 194, 1801 (type locality, no locality).

Apistus monodactylus Cuvier, Hist. Nat. Pois., vol. 4, p. 212, pl. 95, fig. 2, 1829 (Batavia).

Apistes monodactylus Swainson, Nat. Hist. Animals, vol. 2, p. 265, 1839 (on Cuvier).

A 1513 and A 1514. Bira Biraham Island, Borneo. December 31, 1909. Length 262 to 300 mm.

A 1473. Kait Point, Libani Bay, Celebes. December 29, 1909. Length 287 mm.

A 892. Limbe Strait, Celebes. November 10, 1909. Length 264 mm. Ground color slate, bluish on fading. Numerous small round bronzed spots about size of number 8 shot, cover top and back of head well as all body except breast and belly, fusing more or less into stripes on cheek and lower opercle and blotches somewhat on back anteriorly. Dorsal and anal olivaceous or dusky on rays, membranes hyaline. Caudal more or less purplish. Pectorals very pale hyaline straw. Ventrals slate or gray, like body.

Minous monodactylus Bleeker, Verh. Batavia. Genoot. (Perc.), vol. 22, p. 9, 1849 (Batavia; Cheribon); Nat. Tijds. Ned. Indie, vol. 3, p. 444, 1852 (Banka); vol. 16, p. 407, 1858 (Japara, Java); — Kaup, Archiv Naturg., pt. 1, p. 333, 1858 (reference). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 148, 1860 (Madras; Borneo; China; type of Minous adamsii). — Bleeker, Nat. Tijds. Ned. Indie, vol. 21, p. 137, 1860 (Muntok, Banka); Act. Soc. Sci. Ind. Néerl., vol. 3, no. 5, p. 1, 1857–58 (Macassar)

Verslag. Kon. Akad. Wet. Amsterdam, vol. 12, p. 31, 1861 (Singapore). — Day, Fishes of Malabar, p. 43, 1867; — Fishes of India, pt. 1, p. 159, pl. 38, fig. 7, 1875.

(on Luzon and Gaimard). — Bleeker, Nat. Tijds. Ned. Indie, deel 4, 1853, p. 93 (Amboina); deel 8, 1855, p. 306 (Batoe Island).

Prionodon annularis Bleeker, l.c., deel 3, 1852, p. (546) 558 (Amboina).

Cleanthurus incipiens Jenkins, Bull. U.S. Fish Comm., vol. 22, 1902 (1903), p. 480, fig. 32. Honolulu. — Jordan and Veale, Bull. Bur. Fisher., vol. 25, 1905 (1906), p. 357 (Apia, Samoa).

— Bleeker, Verh. Kon. Akad. Wet. Amsterdam, vol. 16, no. 2, p. 63, 1876 (Java, Borneo, Celebes, Banka, Singapore, Sumatra, Pinang).
— Day, Fauna of British India, Fishes, vol. 2, p. 70, fig. 29, 1889.

— Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 151, 1904 (copied). — Weber, Siboga Exped., vol. 65, Fische, p. 497, 1913 (Macassar).

— Fowler and Bean, Proc. U. S. Nat. Mus., vol. 58, p. 317, 1920 (Soochow).
— Fowler, Journ. Bombay Nat. Hist. Soc., vol. 30, no. 3, p. 642, June 30, 1925 (Tuticorin).

p. 339 (Cape Grenville). — Klunzinger, Fische. Roth. Meer., 1884, p. 87.

Acanthurus annulatus Veale and Beam, Proc. U. S. Nat. Mus., vol. 33, 1907, p. 747 (Zamboanga).

Acanthurus annulatus Fowler and Beam, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 37 (Cebu).

Hasena marginata Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 280 ~~207~~. Tongatabau, Friendly Islands. — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 333 (copied). — Günther, Journ. Mus. Godeffroy, band 4, 1875, p. 122, plate 83 (Pelew Islands, Lincieum, Fiji).

Acanthurus marginatus Veale and Beam, Proc. U. S. Nat. Mus., vol. 33, 1907, p. 747 (Zamboanga).

Priodon annularis Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 302, plate 294

Asp. [istes] minous Cuvier, Règne Animal, vol. 2, ed. 2, p. 168, 1829 (on Trigla woanah - minos Russell, Fishes of Coromandel, vol. 2, p. 44, pl. 160 A, 1803, type locality, Vizagapatam; Madras).

Scorpaena biaculeata (Kuhl and Van Hasselt) Cuvier, op. cit., p. 212 (type locality, Batavia, Java; name in synonymy).

Minous woora Cuvier, Hist. Nat. Poiss., vol. 4, p. 421, 1829 (type locality, Mauritius). — Richardson, Ichth. China and Japan, p. 213, 1845 (Mauritius; Indian and China, seas). — Bleeker, Verh. Batavia. Genoot., (Nat. Ichth. Bengal), vol. 25, p. 36, 1853 (reference).

Lazo annulatus (Quoy and Gaimard).
Priodon annulatus Quoy and Gaimard,
Voy. Uranie Zool., January 29 - May 26,
1825, p. 377. Timor.
Lasens annulatus Bleeker, Nat. Tijds. Ned.
Indië, deel 9, 1855, p. (283) 304 (Macassar);
deel 10, 1856, p. 360 (Ternate); deel 11, 1856,
p. 95 (Banda), p. 385 (Kajeli, Buru); deel
12, 1856, p. 230 (Batu Island); deel 13, 1857,
p. 56 (Kajeli, Buru); deel 15, 1858, p. 201
(Goram Island); deel 19, 1859, p. 331
(Pajitan, Java); deel 20, 1859-60, p. 206
(Boleling, Bali). — Bleeker, Act. Soc.
Sci. Ind. Neerl., vol. 2, no. 7, 1857, p. 5
(Amboina); vol. 3, no. 5, 1857-58, p. 2
(Macassar). — Günther, Cat. Fish. Brit.
Mus., vol. 3, 1861, p. 352 (Ameiteum). —
Bleeker, Ned. Tijds. dierk., deel 1, 1863, p. 271
(Atapupu, Timor). — Alleyne and Macleay,
Proc. Linn. Soc. New South Wales, vol. 1, 1876,

Corythobatus woora Cantor, Journ. Asiatic Soc. Bengal, vol. 18, pt. 2, p. 1027, 1849 (1850) (Malay Peninsula).

Apistes russellii Kwainson, Nat. Hist. Animals, vol. 2, p. 265, 1839 (on Russell).

Minous adamsi Richardson, Voy. Samarang, Fish, p. 7, pl. 2, figs. 4-5, 1848 (type locality, China Sea). — Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 151, 1904 (Onomichi; Nagasaki; Kobe; Wakanoura).

Minous blochi Kaup, Archiv Naturg., pt. 1, p. 333, 1858 (name only). Evidently intended as a new name for Scorpaena monodactyla Schneider.)

Minous echigonis Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 153, fig. 14, 1904 (type locality, Niigata, Echigo).

1176

65720 U.S.N.M. Rangiroa, Paumotus.
Bureau of Fisheries. Albatross Collection
1910. Length 298 mm.

71538 U.S.N.M. Naha, Okinawa.
Albatross Collection 1906. Length 188 mm.

Depth 2 2/3; head 2 1/3 to 2 2/5, width 1 1/16 to 1 1/4. Snout 2 2/5 to 2 2/3 in head from snout tip; eye 4 1/5 to 4 4/5, 1 3/4 to 1 4/5 in snout, equals interorbital; maxillary reaches eye, expansion 1 2/5 in eye, length 2 1/10 to 2 1/4 in head from snout tip; teeth in villiform bands in jaws, and patch each side of vomer, none on palatines or tongue; interorbital 4 1/5 to 4 1/2, deeply concave. Gill rakers 5+12, larger clavate, 1/3 of gill filaments, which 1 3/4 in eye. Supraorbital ridge serrate, with broad serrated spine behind; pair of large rugose parietal spines each side, large supracapular further back, which is preceded by row of 3 large, rugose postoculars; preorbital with long spines nearly

equal to eye, small short one in front basally; preopercle with spine equals to eye and 4 strong, broad ones around edge of flange. Skin smooth; row of short supraorbital filaments, few fleshy papillae on maxillary expansion; preopercle flange with few flaps and few along mandible.

D. IX or X, 11, first spine 2 3/5 to 2 3/4 in total head length, first ray 2 1/3 to 2 3/4; A. II, 9, third ray 3 1/8 to 3 2/3; caudal 1 1/4 to 1 2/5, rounded behind; least depth of caudal peduncle 4 1/5 to 4 4/5; pectoral 1 1/8 to 1 1/4, filaments 1 3/5 to 1 4/5; ventral 1 3/5 to 1 4/5.

Back purplish gray, with pale line above lateral line longitudinally and another close below similar. Lower surface whitish. Dorsal

dusky marginally, with blackish marginal blotch at front of soft fin; longitudinal whitish line on spinous dorsal medially, also on soft dorsal. Anal neutral black. Caudal whitish, with 3 transverse dusky cross-bands, median closer to outer, though fin edge narrowly whitish. Pectoral dusky brown terminally, lower ray whitish. Ventral dusky brown terminally, basally whitish.

Mauritius, India, Malaya, East Indies, China, Japan. I am unable to find that Minous adamsi Richardson, as set forth by Jordan and Starks, is really distinct from Minous monodactylus. The lower preopercular spine though obtuse is usually, at least, inclined a little backward and the dark

bars on the caudal are variable.

One example. Nandakan market, Borneo. March 2, 1908. Length 78 mm. Interorbital equals orbit.

U. S. N. M., No. 26247. Japan. Prof. E. S. Morse. 1878. Length 98 to 135 mm. Nine examples.

U. S. N. M., No. 51324. Onomichi, Japan. D. S. Jordan and J. O. Snyder. Length 70 to 122 mm. Five examples. Cat Minous adamsii.

U. S. N. M., No. 51361. Nagasaki. D. S. Jordan and J. O. Snyder. Length 78 to 99 mm. Cat Minous adamsii. Two examples.

U. S. N. M., No. 51366. Wakanoura. D. S. Jordan and J. O. Snyder. Length 94 to 103 mm. Three examples. Cat Minous adamsii.

U. S. N. M., No. 71667. Kagoshima, Satsuma. Albatross Collection. 1904. Length 114 to 118 mm. Two examples.

The smaller specimen has a caudal even more variegated than that shown in the figure of Minous echigonus Jordan and Starks.

U. S. N. M., No. 71916. Nagasaki. Albatross Collection. Length 110 mm.

U. S. N. M., No. 75925. Japan? P. L. Jouy. Two examples. Length 54 to 68 mm.

U. S. N. M., No. 84002. Foo-Chow, China. N. Gist Gee. Length 90 mm.

U. S. N. P., 5 examples. Tuticorin, India. 1922. Madras Fisheries Department. Length 80 to 94 mm.

1530

Minous versicolor Ogilby

Minous versicolor Ogilby, New Fish. Queensland Coast, p. 111, Dec. 20, 1910 (type locality, Off Cape Gloucester, South Queensland). — Mc Culloch, Biol. Res. Endeavour, vol. 3, pt. 3, p. 162, pl. 32, April 21, 1915 (seven miles N.N.E. of Gloucester Head, Queensland; ~~to 35 fathoms~~ Platypus Bay; 7 to 35 fathoms). — Mc Culloch and Whitley, Mem. Queensland Mus., vol. 8, pt. 2, p. 164, July 7, 1925 (reference). — Mc Culloch, Austral. Mus. Mem., No. 5, pt. 3, p. 391, Nov. 28, 1929 (reference).

depth 2 3/4; head 2 1/3. Snout 2 9/10 in head from snout tip; eye 4 1/4, 1 1/2 in snout; maxillary reaches 1/4 in eye, length 2 1/6 in head from snout tip; teeth in villiform bands in jaws and in 2 groups on vomer; interorbital 4 9/10.

Armature with granular bony ridges, intermediate shiny areas with minute tubercles; preorbital with star-shaped cluster of ridges and 2 marginal spines, posterior spine 1/5 in eye; suborbital flap with median tubercle with radiating ridges; front part of supraorbital carinate and granular; ~~supe~~ postero-supraorbital ridge with 2 granular tubercles; broad shallow occipital groove; prominent nuchal granular ridge each side, former obtuse spine

posteriorly; granular tubercle above suspension of preopercle, another above opercle and on suprascapula; strong carinate preopercular spine and 5 others below; opercle with 2 ridges not ending in spines.

Body naked, smooth; except tubercular front part of back and breast. Lateral line a row of pores along upper side of back to upper part of tail. Mandible with number of short tentacles near symphysis and longer barbel near middle of each ramus. Eye with 3 branched cirri on upper portion.

D. VIII or IX, 12 or 13, last spine 2 2/3 in total head length, fifth ray 1 7/8; A. 10 or 11, fifth ray 3 1/8; caudal 1 3/7, convex behind;

caudal peduncle depth 4; pectoral I/4, rays 11, I; ventral rays I, 5, fin I/4 in total head. Whitish with plum colored stripes and oblique bars. Two rather irregular stripes along body, upper following lateral line. Several more or less regular oblique bands cross dorsal fin, which may or may not join upper body stripe; margin of dorsal blackish. Pectoral dark with lighter cross bars. Caudal with 2 or 3 ~~dark~~ cross bars. Anal and ventral dusky, outer portions blackish. Length 103 mm.

(McCulloch.)

Queensland.

1534

Minous pictus Günther

Minous pictus Günther, Rep. Voy. Challenger, vol. 1, pt. 6, p. 41, pl. 18, fig. A, 1880 (type locality, Arafura Sea, south of New Guinea). — Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 378, 1905 (reference). — Fowler, Mem. Bishop Mus., vol. 10, p. 299, 1928 (copied).

Depth 3 1/5; head 2 2/5. Snout 2 3/4 in head from snout tip; eye 4 4/5 in snout, greater than interorbital; maxillary reaches eye, length 2 1/10 in head from snout tip; interorbital concave, equals vertical eye diameter.

Spines and ridges of head distinct; preorbital with rather

Siganus rostratus (Valenciennes).

Amphacanthus rostratus Valenciennes, Hist. Nat. Poiss., vol. 10, 1835, p. 156 (146). Massaua, Red Sea. — Klunzinger, Verh. zool. bot. Ges. Wien, band 21, 1871, p. 503 (type).

Teuthis rostrata Playfair, Fishes of Zanzibar, 1866, p. 50, plate 10, fig. 2 (Zanzibar). — Günther, Journ. Mus. Godeffroy, band 2–3, heft 5–6, 1874, p. 89, plate 60 (Pelew Islands, Society Islands, Gilbert Islands). — Klunzinger, Fische Roth. Meer., 1884, p. 76. — Steindachner, Denkschr. Akad. Wiss. Wien, band 71, 1907, p. 140 (Gischam, South Arabia).

Siganus rostratus Jordan and Richardson, Bull. Bur. Fisher., vol. 27, 1907 (1908), p. 271 (Fuga). — Snyder, Proc. U. S. Nat. Mus., vol. 42, 1912, p. 511 (Okinawa). — Fowler and Bean, Proc. U. S. Nat. Mus., vol. 62, 1922, p. 58 (Zamboanga). — Fowler, Proc. Acad. Nat. Sci.

strong spine, obliquely directed downwards and backwards, and with another small one in front; 2 preopercle spines conspicuous.

D. XI, 10 or 11; origin over opercle, with spine 2 in total head length; first ray 2 1/4; A. 12; fin height 2 1/2; caudal convex behind, length 1 7/8; depth of caudal peduncle 4 1/2; pectoral 1 1/3, with detached ray below; ventral 1 1/3, rays I, 5.

Back and dorsal largely marbled with blackish brown and white, lower parts and caudal whitish. Anal and paired fins black, hind surface of pectoral whitish with black stripe along each ray. Length 64 mm. (Günther.)

Arafura Sea.

preorbital with 2 strong spines,
posterior recurved and much
longer; infraorbital ring forms
broad, massive, salient buttress,
ridged and furrowed, not spiny;
deep crescentic

1536

Minous coccineus Alcock

Minous coccineus Alcock, Ann. Mag. Nat. Hist., London, ser. 6, vol. 6, p. 428, 1890 (type locality, off Ganjam Coast, in 28 to 30 fathoms); Journ. Asiatic Soc. Bengal, vol. 65, pt. 2, p. 314, 1894 (reference).

Depth little over 4 in total; head 3 2/5. Snout truncated, less than eye; eye 3 in head; maxillary reaches 3/7 in orbit; villiform teeth in jaws and in narrow band on bevelled edge of vomer. interorbital narrowest in middle, width barely 3/4 eye diameter.

lower jaw more prominent, each limb with 2 or 3 barbels;

Bones of head strong, massive, rugose, carious in appearance;

4931. Tataan, Tawi Tawi Group. February 20, 1908. Length 240 mm. Sides cadmium orange, with many small ultramarine round blue dots, slightly larger ventrally and pearl gray on breast. Shoulders, side of head and breast sulphur yellow, covered with rounded azure blue spots much larger than on body. Olive green on top of head, shading into yellow on snout. Spots not apparent on chin or lips. Iris dark olive green to brown, included with dark area on top of head. Dorsal pale orange, lemon yellow on posterior base. Anal orange, spinous portion very pale; blue stripes and spots on sides of spines, these spots fusing into blotches and stripes along anal base. Lower part of caudal peduncle bluish drab. Caudal like dorsal, lemon yellow on caudal

supraorbital margin coarsely crenulated, infraorbital margin thin, sharp, very salient, incomplete behind and also in front, where well-marked groove which recurves across cheek; deep crescentic carious excavation across occiput; occipital and temporal spines strong, coarsely serrated; preorbital 2 strong spines, posterior recurved and much longer; suborbital stay broad, massive, salient buttress, ridged and furrowed, not spiny; preopercle with strong sharp spine at angle and 2 smaller coarse ones below; opercle with 2 diverging weak stays; interopercle serrulated.

Skin thick, investing all fins

except caudal

D. X, I, 12, fin separated by deep notch, spinous fin irregular, first spine very small, second and third subequal not quite half of head and isolated from each other and from rest of fin; fourth to sixth subequal and nearly half of head form isolated group; next 4 spines short and weak form another isolated group; spine of second dorsal over half length of head and longer than soft rays.

A. 12. Caudal truncated.

Pectoral nearly long as head, detached ray thick, rigid, reaches second anal ray.

Ventral adherent to abdomen for greater part, reaches vent.

In life crown and nape

1539

deep brown; throat milk white.
Body and fins deep crimson,
become very dark at margins
of spinous dorsal, anal and
paired fins. Inner surface of
pectorals dark brown, with
broad canary-yellow lines forming
a hexagonal pattern. Length 106
mm. (Alcock.)

India.

Trinous superciliosus Gilchrist and Thompson

Trinous superciliosus Gilchrist and Thompson, Ann. South African Mus., vol. 6, pt. 2, p. 177, 1908 (type locality, Amatikulu Conical Hill, north west 7½ miles, in 26 fathoms); Ann. Durban Mus., vol. 1, pt. 4, p. 410, May 21, 1917 (reference). — Von Bonde, Fisher. Marine Surv. South Africa, Rep. No. 3, Spec. Ref. No. 1, p. 29, 1923 (1924) (off South Africa). — Barnard, Ann. South African Mus., vol. 21, pt. 2, p. 921, Oct. 1927 (Zululand, in 26 fathoms). — Fowler, Proc. Acad. Nat. Sci. Philadelphia, vol. 86, p. 486, 1934 (off South Africa).

Length 346 mm.

7699. Ulugan Bay near Rita Island. December 29, 1908. Length 426 mm.

7370. Tara Island. December 15, 1908. Length 240 mm.

A 1555. San Wan, Kwaling Bay, Formosa. January 25, 1910. Length 278 mm.

52668 U.S.N.M. Pualo Bay, Hawaii. Albatross Collection. 1901-2. Length 228 mm.

52672 U.S.N.M. Pualo Bay. 1901-2. Albatross Collection. Length 288 mm.

53017 U.S.N.M. Honolulu. Albatross Collection. Length 178 mm.

65702 U.S.N.M. Hawaii. Albatross Collection 1899-1900. Length 46 mm.

Dorsal 3; head 2, width 1 1/3. Snout 3 in head from snout tip; eye 3 1/2, 1 1/5 in snout, slightly greater than interorbital; maxillary reaches 1/4 in eye, expansion 1 3/4 in eye, length 2 1/2 in head from snout tip; teeth fine, villiform, about 4 irregular series in band in upper jaw; lower band similar though narrowing laterally in jaws, and short single row each side of vomer; interorbital 4 1/3, deeply concave. Gill rakers 4+9, short, clavate, 1/2 of gill filaments, which 2 2/3 in eye. Preorbital with 2 strong spines, directed downward and posterior extends backward, its length 1 1/2 in eye; 5 strong, large spines from preopercle edge, second longest or 1 1/3 in eye; top and sides of head rugose osseous.

Skin of body smooth. Lateral line little waved, parallel with back and superior along tail and caudal peduncle.

D. XI, 12, fifth spine 2 2/5 in total head, last spine 1 7/8; A. I, 10, seventh ray 1 7/8; caudal 1 1/4, convex behind; least depth of caudal peduncle 4; pectoral 1 1/8, rays 10, I, lowest free; ventral 1 2/3 in total head.

Generally mars brown, little paler below and on vertical fins, though anal little darker terminally. Oblique pale streaks from lower half chiefly of soft dorsal slope backward on back, where more or less waved and somewhat irregular. Iris dark gray. Paired fins dark neutral gray. Pectorals blackish terminally where also pale reticulating lines. J.

South Africa.

1543

A. N. W. P., one example. South Africa. August 17, 1930. Pickle Survey. H. W. Bell Marley. Length 110 mm.

1544

Murinous longipinnis Lloyd

Murinous longipinnis Lloyd,
Mem. Indian Mus., vol. 2, no.
3, p. 162, Pl. 47, fig. 3, Aug.
1909 (type locality, Gulf of
Oman, in 230 fathoms).

Depth 3 1/8; head 2 1/6. Snout 2 4/5 in head from snout tip; eye 4 7/8, 1 3/4 in snout; maxillary reaches 7/8 to eye, expansion 1 1/2 in eye, length 2 3/4 in head from snout tip; armature of head well developed.

D. X, 12, insertion over preopercle, second spine 2 in total head length, third ray 1 3/4; A. II, 10, second spine 3 2/5, fifth ray 2 1/8; caudal 1 2/5; depth of caudal peduncle 4 4/5; pectoral reaches 1 1/6 to caudal base or 2 in fish without caudal, rays 10, I; ventral rays I, 5, fin 1 2/3 in total head length.

Upper half dark gray, fading light gray below; fin edges blacks. Paired fins almost black. Length 100 mm. (Alcohol)

Arabian Sea.

Genus Chorismopelor Chevey

Chorismopelor Chevey, Bull. Mus. Hist. Nat., Paris, p. 222, 1927. (Type Chorismopelor joubini Chevey, monotypic.)

Body elongate, tapering from head. Head moderate. Snout rather long, inclined. Eye small, high, protruding above, little advanced from middle in length of head. Mouth low, well inclined, lower jaw protruding. Maxillary not reaching eye, expanded behind. Villiform teeth in jaws and on vomer, none on palatines. Head above with depressions and ridges. Branchiostegals 6. Skin with short filaments and flaps. Dorsal

8866 to 8868. Carimo Island.

June 15, 1909. Length 228 to 260 mm.

15907. Capulan Bay, Paigbilao Island.

February 24, 1909. Length 185 mm.

13164 and 13165. Catangan Bay, Masbate.

April 17, 1908. Length 108 to 111 mm.
1 example. Catanigan Bay. April 18, 1908. Length 65 mm.
15271. Caamdhala Bay, Ragay Gulf.

March 11, 1909. Length 168 mm.

18392. Cebu market. April 4, 1908. Length 103 mm.

17084. Dapan Port, Leyte Island. March 17. 1909. Length 150 mm.

14628. Galvanez Island, Ragay Gulf.

March 9, 1909. Length 160 mm.

4594 and 4595. Grande Island Reef, Subig Bay. January 8, 1908. Length 168 to 176 mm.

A1346 and A1347. Great Tobea Island.

December 14, 1909. 3 examples. Length 186 to 223 mm.

14429. Gubat Sorgoson, Luzon. June 23, 1909. Length 110 mm.

with 17 spines and 7 rays, first spine begins over hind part of preopercle. Anal with one short spine and 8 rays. Caudal small. Pectoral large, reaches anal, with 9 rays and 3 more below semidetached. Ventral with 1 spine and 5 rays.

Indo China. Differs from Chaudacetylus in more dorsal spines and rays, a single anal spine and the presence of vomerine teeth.

1548

Chorismopelor joubini Chevey

Chorismopelor joubini Chevey, Bull. Mus. Hist. Nat., Paris, p. 222, figs., 1927 (type locality, Tonkin).

depth 4; head 3 to 3 1/10. Snout 2 7/8 in head from snout tip; eye 6 1/5; 2 in snout, 2 in interorbital; maxillary reaches 3/4 to eye, expansion 1 1/8 in eye, length 3 in head from snout tip; interorbital strongly concave, separated by ridge quadrangular occipital depression; large preorbital concavity before each eye.

~~Parallel and~~.

Supraorbital ridge spiny. Suborbital stay with row of spines, 2 anteriorly 2 below

15172. Abibijaban Island, Ragay Gulf, Luzon. March 6, 1909. Length 110 mm.

11200, 13713, 16066. Alimanao Bay, Burias Island. March 5, 1909. Length 118 to 165 mm.

19373. Beach near Cadolo, Ulugan Bay. December 29, 1908. Length 60 mm.

9492, 10590, 19767. Bolalo Bay, Palawan Island. 4 examples. December 21, 1908. Length 68 to 215 mm.

12204, 14795, 15569, 15570. Bugsuk Island, Balabac. January 5, 1909. Length 85 to 158 mm.

9008 and 9009. Busin Harbor, Burias Island. April 22, 1908. Length 161 to 188 mm.

108 and 15308. Busin Harbor. March 8, 1909. ~~March 8, 1909.~~ Length 103 to 152 mm.

9821. Cagayan, Sulu Island. January 8, 1909. Length 200 mm.

14981. Calangaman Island. March 16, 1909. Length 162 mm.

eye and 2 posteriorly.

On lower side of head and parallel with suborbital stay 2 rows of of jagged cutaneous flaps. Mandible with 2 jagged flaps. Lateral line as row of 4 cutaneous caruncles, along upper side of back, nearly equidistant and below main part of spinous dorsal, furnished with jagged small flaps.

D. XVII, 7, first 3 spines little set off by notch from others, first spine inserted over vertical arch of preopercle and length $2\frac{1}{6}$ in total head, first ray of second fin $2\frac{1}{10}$; A. I, 8, third ray 2; caudal $1\frac{4}{5}$, convex behind; least depth of caudal peduncle $3\frac{1}{2}$; pectoral 9, III, fin $1\frac{1}{10}$ in

head; ventral $\frac{I}{8}$, rays $\frac{I}{\equiv}, 5$.

Brown, somewhat chocolate, deeper colored in alcohol. Caudal and pectoral rays with series of black blotches, reticulate on free rays of latter. (Chevey.)

Indo-China. Though its length is not given the figure is 110 mm. long.

Genus Dinimicus Jordan and Starks

Dinimicus Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 158, 1904. (Type Pelor japonicum Cuvier, designated by Jordan and Evermann, Genera of Fishes, pt. 1, p. 127, 1917.)

Pelor (not Bonelli in coleoptera 1813) Cuvier, Hist. Nat. Poiss., vol. 4, p. 427, 1829. (Type Pelor filamentosum Cuvier; "type est le Pelor filamentosum, Cuv. Val." by Desmarest, Encycl. Hist. Nat. Rep. Poiss., Chenu, p. 215, 1874.)

Zebrasoma rostratum (Günther).

Acanthurus rostratus Günther, journ.
Mus. Godeffroy, band 4, 1875, p. 117, plate
66, fig. B. Society Island.

Zebrasoma rostratum Jordan and Seale,
Bull. Bur. Fisher, volume 25, 1905 (1906), p.
866 (Amoy).

D. V, 24; A. III, 20. Uniform black.
Length 178 mm. (Günther.)

This little Samoan species forms the subgenus Laephacanthus Gilby, in its strong dorsal spines and produced snout. It parallels in Zebrasoma the subgenus Lo in Siganus. The examples in the U. S. National Museum reported as this species by Jordan and Seale are Zebrasoma flavescens. The species does not appear to have been seen since Garrett's figure was made.

1554

Synopias Gill, Proc. U. S. Nat. Mus., vol. 28, p. 224, 1905. (Type Pelor filamentosus orthotypic.)

Genus Trachicephalus Gill

Trachicephalus

1553

Body elongate, moderately compressed, anteriorly low. Head moderate, depressed, irregularly formed with protruding snout and eye, ~~and occiput.~~ Mouth moderate, low, little inclined. Maxillary not reaching eye, expanded behind. Villiform teeth in jaws and on vomer. Branchiostegals 7. Air bladder small. Pyloric appendages 4. Rather blunt spines on head and depression at occiput. No scales, skin smooth. Head, body and fins with skinny appendages. Dorsal begins over preopercle, first 3 spines connected by membrane and set off from following 12 to 15 spines, each of which with membrane deeply cleft. Anal with long base, rays low, 11 or 12. Caudal rounded behind. Paired fins rather large.

Dniwicus Jordan & Starks 1554

According to Jordan and Starks this genus differs from Pelor chiefly in the absence of long filamentous tips to the upper rays of the pectorals. Its head is also more depressed and of slightly different shape. Evidently the two species they admit are both referible to one, D. aurantiacus differing chiefly in its orange color, - or blackish tinged with orange, but without distinct cross bands.

Analysis of Species

a.' Pectoral rays not produced;
d. XVI to XVII, 7 to 9, A. 9 to 13.
b.' A. 12 or 13; D. rays 8 or 9.
c.' Snout longer than postocular region. didactylus.
d.' detached pectoral rays shorter than head; pectoral axil with purple or brown spots, and yellowish or white blotches. didactylus.
d.'' detached pectoral rays longer than head; pectoral axil with purple, without spots or blotches. cuvieri.
c.'' Snout shorter than postocular region. brachyrhynchus.
b.'' A. 9; D. rays 7. japonicus.
a.'' Single upper pectoral ray produced. bifilis.
a.''' Two upper pectoral rays produced, D. XV, 8; A. 11. filamentosus.

1556

Inimicus didactylus (Pallas)

Scorpaena didactyla Pallas, Spicil. Zool., pt. 7, p. 26, pl. 4, figs. 1-3, 1769 (type locality, Oceano Indico). — Bonnaterre, Tabl. Ichth., p. 70, pl. 38, fig. 152, 1788 (sea of the Indies). — Gmelin, Syst. Nat. Linn., pt. 1, p. 1219, 1789 (reference). — Walbaum, Artedi Pisc., vol. 3, p. 382, 1792 (on Pallas). — Forster, Fauna Indica, p. 14, 1795 (reference). — Lacépède, Hist. Nat. Poiss., vol. 3, pp. 259, 285, 1802 (sea of the Indies).

15707. Vanquisiapo Island. February 24, 1908. Length 115 mm.

12684. San Miguel Island. June 4, 1909. Length 97 mm.

12190, and 12191. San Roque, Leyte. July 29, 1909. Length 115 to 134 mm.

10368 and 10369. ~~Silig,~~ ?Silig, Lubang Island. July 14, 1908. Length 120 to 143 mm.

19591. Limalue Island. April 22, 1909. Length 63 mm.

12235. Limalue Island. September 22, 1909. Length 153 mm.

14393. Talisse Island. November 9, 1909. Length 102 mm.

12702 & 12704. Tara Island. December 14, 1908. Length 102 to 123 mm.

Synanceja didactyla Schneider, Syst. Ichth. Bloch, p. 195, 1801 (mare indicum).

Synanceia didactyla Schneider, op. cit., p. xxxvii (name in synopsis).

Pelor didactylum Günther, Cat. Fish. Brit. Mus., vol. 2, p. 150, 1860 (copied). — Weber, Siboga Exped., vol. 65, Fische, p. 497, 1913 (Kei Island).

Pelor didactylus Bleeker, Verslag. Kon. Akad. Wet. Amsterdam, vol. 16, p. 365, 1864 (Noessa-Laut, Moluccas); Nat. Verh. Holland. Maatsch., Haarlem, ser. 3, vol. 2, no. 3, p. 7, pl. 4, figs. 1–a, 1874 (Singapore, Celebes, Batjan, Ceram, Amboina, Nussa Laut, Waigiu).

10345, 10347, 10496. Port Maricaban. July 21, 1908. Length 64 to 113 mm.

16516, 20798, 23252. Port Matalvi, Luzon. November 22, 1908. Length 104 to 120 mm.

8430, 9427, 10998, 10999, 11000, 17540. Port Matalvi. November 23, 1908. Length 110 to 135 mm.

15650. Rapu Rapu Island. June 22, 1909. Length 150 mm.

14758. Romblon. March 26, 1908. Length 102 mm.

11400. Tabatan Island. November 8, 1908. Length 130 mm.

13367 and 13369. Tabayan Island, Mindoro. December 12, 1908. Length 115 to 120 mm.

1538

Dumicus didactylus Fowler, Copeia, No. 58, p. 65, June 18, 1918 (Philippines); Proc. Acad. Nat. Sci. Philadelphia, vol. 79, p. 288, 1927 (Philippines). — Herre, Fishes Philippine Exped., p. 66, 1931 (1934) (Culion; Dumaguete).

15681. Palaq Bay vicinity, Luzon. June 16, 1909. Length 122 mm.

19063. Paluan Bay, Mindoro. December 11, 1909. Length 138 mm.

21. Pandaxxon Island. March 23, 1909. Length 120 mm.

16893 and 16894. Tirang, Mindanao. May 23, 1908. Length 140 mm.

11130. Pasacao, Ragay Gulf. March 9, 1909. Length 120 mm.

17875 to 17881, 17883. Polloc, Mindanao. May 22, 1908. Length 100 to 130 mm.

11257 and 14716. Port Caltom. December 15, 1908. Length 140 mm.

12958, 17735, 21637. Port Jamelo, Luzon. July 13, 1908. Length 110 to 120 mm.

Pelor obscurum Cuvier, Hist. hat. Poiss., vol. 4, p. 436, 1829 (type locality, Port Praslin, New Ireland). — Lesson, Voy. Coquille, Zool., vol. 2, p. 211, pl. 21, fig. 2, 1830. — Bleeker, hat. Tijds. hed. Indie, vol. 5, p. (234) 241, 1853 (Ceram); vol. 7, p. 360, 1854 (Batjan); vol. 9, p. 284, 1855 (Amoerang, Celebes); Act. Soc. Sci. Ind. Neerl., vol. 1, no. 5, p. 5, 1856 (Amboina); vol. 2, no. 7, p. 4, 1857 (Amboina). — Kner, Reise Novara, Fische, p. 119, 1867 (Singapore).

Scorpaena digitata Gray, Fishes of Gronow, p. 117, 1854.

dots on head and breast. Iris brown. Dorsal greenish black. Anal and caudal slate. Pectoral with orange shades and narrow line on first ray. Ventral greenish black.

21038. Little Santa Cruz Island. May 28, 1908. Length 114 mm. White streak from opposite opercle back along median axis to villi of tail.

19821. Inactan Island, Cebu. March 25, 1909. Length 110 mm.

7882. Maculabo Island. June 14, 1909. Length 133 mm.

6775 and 6776. Malanipa Island. September 8, 1909. Length 177 and 178 mm.

— Peters, Monatsb. Akad. Wiss. Berlin, p. 834, 1876 (New Britain).

Inimicus maculatus Jordan and Seale, Bull. Bur. Fisher., vol. 25, p. 379, 1905 (reference).

15470 and 15471, 18280. Galera Bay, Mindanao Island. June 9, 1908. Length 102 to 148 mm.

14375 and 14629. Galvaney Island, Ragay Gulf, Luzon. March 9, 1909. Length 126 to 129 mm.

14434. Gubat, Sorgoson, Luzon. June 23, 1909. Length 115 mm.

18864. Inamucan Bay. August 8, 1909. Length 128 mm.

14739. Kayoa Island. November 29, 1909. Length 132 mm.

193 and 15527. Langao Point, Luzon. June 24, 1909. Length 145 to 152 mm. Seal brown, changing to light olive green. Body with very fine, numerous lines of pearl blue, breaking at

Trigla rubicunda Thunnberg, D. D. Inus. Ac. Upsul., p. 31, 1787 (type locality, Amboina). — Hornstedt, Kgw. Vet. Acad. Handl., Stockholm, vol. 9, p. 49, 1788 (Amboina). — Walbaum, Artedi Pisc., vol. 3, p. 372, 1792 (copied).

Synanceja rubicunda Schneider, Syst. Ichth. Bloch, p. 196, 1801 (Amboina).

Synanceia rubicunda Schneider, op. cit., p. XXXVII (name in synonymy).

Pelor maculatum Cuvier, Hist. Nat. Poiss., vol. 4, p. 434, 1829 (type locality, Waigiu). — Lesson, Voy. Coquille, Zool., vol. 2, p. 210, pl. 20, 1830 (Waigiu). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 150, 1860 (copied).

4700, 8884, 14930. Mansalay, Mindoro Island. June 4, 1908. Length 130 to 153 mm.

5112. Mantacao Island, west coast of Bohol. April 8, 1908. Length 97 mm.

11379. Manicaban Island, Luzon. January 20, 1908. Length 115 mm.

10496. Manicaban Island. July 21, 1908. Length 73 mm.

9049 and 9050. Masbate reef, Masbate. April 20, 1908. Length 115 to 145 mm.

16507 to 16510. Buncielagos Bay. August 9, 1909. Length 99 to 127 mm.

15753 and 20561. Opol, Mindanao. August 4, 1909. Length 104 to 117 mm.

15163. Pagapas Bay. February 20, 1909. Length 140 mm.

Depth 3; head 3, width 1 1/8. Snout 2 in head from snout tip; eye 6, 3 in snout, 2 in interorbital; maxillary 2 1/4 in head, expansion equals eye; teeth villiform, in bands in jaws and across vomer; interorbital 3 in head, deeply concave. Gill rakers 2+7, low tubercles. Head and dorsal fins with many skinny flaps.

D. XVIII, I, 6, second spine 2 1/4 in total head length, first branched ray 2 1/5; A. I, 12, ninth ray 2 1/2; caudal 1 2/5, rounded; least depth of caudal peduncle 4 4/5; pectoral 1, with 2 stiff, free lower rays; ventral 1 1/4.

Brown above, whitish below. Four large dusky brown areas on dorsals and over body, latter with small, scattered, dark dots

and darkly clouded. Caudal dusky brown, paler basally. Anal dark brown. Paired fins neutral dusky terminally, pale basally, with scattered dark dots; pectoral with subbasal transverse dark band.

India, Malaya, East Indies, Philippines, Melanesia.

One example. La General Island. May 9, 1908. [6147]. Length 108 mm. Eye 1 1/2 in interorbital.

19318. Pandanon Island. March 24, 1909. Length 46 mm. Eye 1 1/8 in interorbital.

[180.] Rita Island, Ulugan Bay, Palawan. December 29, 1908. Length 108 mm. Eye 1 1/2 in interorbital.

One example. Subig Bay, Olongapo. January 7, 1908. Length 53 mm. Eye 1 1/8 in interorbital.

One example. Subig Bay. January 7, 1908. Length 137 mm. Eye 1 3/4 in interorbital. Differs only in its wide interorbital.

A. N. S. P., one example. Philippines. Commercial Mus. of Philadelphia. Length 183 mm.

1565

Inimicus cuvieri (Gray)

Pelors cuvieri Gray, Illustrat. Indian Zool., Hardwicke, vol. 2, pl. 90, fig. 2, 1832–34 (type locality, India).

Pelor cuvieri Richardson, Ichth. China and Japan, p. 212, 1845 (Canton); Voy. Sulphur, Fish, p. 72, 1848.

— Bleeker, Nat. Tijdw. Ned. Indie, vol. 4, p. 252, 1853 (Priaman, Sumatra); vol. 20, pp. 216, 440, 1859–60 (Singapore). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 150, 1860 (type; China). — Bleeker, Nat. ~~Kon~~. Verh. Holland. Maatsch., Haarlem, ser. 3, vol. 2, no. 3, p. 8, pl. 3, fig. 1, pl. 2, fig. 3, 1874 (Sumatra).

with very small blue dots. Tip of snout and chin opaque. Fins slightly darker than body, except pectoral, spines opaque, rays umber and membranes hyaline.

14637
14636, and 22228. Buka Island, Gulf of Tomini, Celebes. November 20, 1909. Length 75 to 127 mm.

16325 and 21121. Cape Kait, Libani Bay, Celebes. December 29, 1909. Length 65 to 108 mm.

9501. Dodepo Pasejogo Island, Celebes. November 16, 1909. Length 80 mm.

21450. Una Una Road, Gulf of Tomini, Celebes. November 17, 1909. Length 68 mm.

depth 4; head 2 3/4. Snout 2 1/4 in head from snout tip; eye 6 1/5, 3 1/4 in snout, 2 in interorbital; maxillary reaches 3/5? to eye, expansion 1, length 3 2/3 in head from snout tip; snout equals postocular.

Preorbital spines 2, posterior twice anterior or equals eye; 4 or 5 preopercular spines, 2 above well developed and others obtuse or rudimentary; opercle with 2 diverging elevated crests.

Skin of head, body and fins smooth, with numerous cirri or filaments, longer on at flaps on lower side of head.

D. XVII or XVIII, 8 or 9, third spine 1/4=5= in total head length, first ray 2; A. III, 11, eighth ray 1/4, caudal 1/3, =convex behind=, depth of caudal pedencle 4;

pectoral $\frac{1}{10}$, rays $\frac{I}{=}, 9 \frac{II}{=}$; ventral rays $\frac{I}{=}, 5$, length $\frac{1}{2}$ in total head length.

Body deep brown, with pale cloudings and pearly or bluish dustings. Fins brownish or purplish, dotted with pearly or bluish. Iris rosy spotted with yellow. Tongue purplish or rose variegated with white. Length 172 mm.. (Bleeker.)

India, East Indies, China.

Inimicus brachyrhynchus (Bleeker)

Pelor brachyrhynchus Bleeker, Nat. Verh. Holland. Maatsch., Haarlem, ser. 3, vol. 3, no. 3, p. 5, pl. 3, fig. 2, pl. 2, fig. 4, 1874 (type locality, Singapore).

Depth 3 3/4; head 2 3/4. Snout 3 in head from snout tip; eye 8, 3 in snout, 2 in interorbital; maxillary reaches 4/5 ? to eye, expansion 1 1/4 times eye, length 2 1/6 in head from snout tip; bands of fine teeth in jaws and on vomer, none on palatines; snout 1 3/5 in postocular.

Preorbital spines 2, posterior twice as large as anterior or equals

7939 to 7941 [191, 193]. Tataan Island, Tawi Tawi Group. February 20, 1908. Length 93 to 125 mm.

10448, 18755, 19145, 19146. Tilig, Lubang. July 14, 1909. Length 93 to 148 mm.

15530 and 18877. Tilig. July 15, 1909. Length 91 to 140 mm.

264 and 19058. Jutu Bay, Jolo. September 19, 1909. Length 110 to 124 mm.

7178, 7180 and 7181. West coast of Palawan Island. November 18, 1908. Length 145 to 165 mm.

6985. West coast of Sablayan Island, November 9, 1908. Length 140 mm. Body bistre, fading to yellowish anteriorly. Head and breast peppered

eye; 4 or 5 preopercular spines, upper longer; opercle with 2, elevated, divergent ridges.

Skin of head, body and fins smooth, with numerous cirri or filaments, as flaps at ends of dorsal spines, row along lateral line and especially on lower sides or under surface of head.

D. XVII, 7, third spine $2\frac{1}{2}$ in total head length, second ray 2; A. II, 9, fourth ray $2\frac{3}{3}$; caudal $1\frac{3}{5}$, convex behind; depth of caudal peduncle $3\frac{4}{5}$; pectoral $1\frac{1}{10}$, rays I, 7, I—II; ventral rays I, 5.

Color brownish above, below pale pinkish. Head with whitish spot above. Iris rosy. Tongue whitish, with brownish or purplish

blotches anteriorly. Fins brown or purplish, on dorsal 3 broad oblique whitish bands, broad median partly diffuse rosy band and caudal with 2 pale transverse bands. Axil of pectoral with close set small black spots. Length 180 mm.
(Bleeker.)

Malaya.

1571

Ixinicus japonicus (Cuvier)

Pelor japonicum Cuvier, Hist. Nat. Poiss., vol. 4, p. 37, pl. 93, 1829 (type locality, China; Japan). — Schlegel, Fauna Japonica, Poiss., fts. 2–4, p. 44, pl. 18, fig. 2, 1843 (bays near Nagasaki). — Richardson, Ichth. China and Japan, p. 212, 1846 (Japan; China). — Bleeker, Act. Soc. Sci. Ind. Neerl., vol. 5, no. 9, p. (2) 3, 1858–59 (Nagasaki). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 151, 1860 (Japan; China; Canton). — Steindachner and Döderlein, Denks. Akad. Wiss. Wien, Math.-naturw. Kl., vol. 47, pt. 1, p. 197, 1883 (Japan).

Zebrasoma xanthurum (Blyth).

Acanthurus xanthurus Blyth, Prodr. Faun. Ceylon, Kelaart, Append., 1852, p. 50. Ceylon. — Günther, Cat. Fish. Brit. Mus., vol. 3, 1861, p. 343 (copied). — Playfair, Fishes of Zanzibar, 1866, p. 57, plate 8, fig. 4 (Aden). — Klunzinger, Verh. zool. bot. Ges. Wien, band 21, 1871, p. 504 (Red Sea). — Day, Fishes of India, pt. 1, 1875, p. 207. — Day, Faun. Brit. India, vol. 2, 1889, p. 144.

Acanthurus (Harpurus) xanthurus Klunzinger, Fische. Roth. Meer., 1884, p. 95 (Koseir).

Depth 2⅓ in total. D. V, 24 or 25; A. III, 20 or 21. Blackish, caudal yellow. Head and shoulders reticulated with gray. Pectoral yellowish terminally. Length 204 mm. (Day.)

— Lystrom, Bih. K. Svensk. Vet. Akad. Handl. Stockholm, vol. 13, af. 4, no. 4, p. 19, 1887 (Nagasaki). —

— Ishikawa and Matsmura, Cat. Fish. Mus. Tokyo, p. 49, 1897.

— Steindachner, Ann. k. k. Naturh. Hofmus. Wien, vol. 11, p. 203, 1896 (Kobe). —

— Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 100, 1901 (reference).

— Jordan and Starks, Proc. U. S. Nat. Mus., vol. 27, p. 159, 1904 (Tokyo, Tsuruga, Onomichi, Yokohama, Kobe).

2 examples (with 66084 U.S.N.M.).
Oahaa, Society Islands. Albatross
Collection. Length 167 to 188 mm.

2 examples. Cis Zebrasoma veliferum.
The following are all the yellow phase:
55026 U.S.N.M. Hawaiian Islands.
Albatross Collection. 1906. Puako Bay.
2 examples. Length 158 to 163 mm.

55546 U.S.N.M. Hawaiian Islands.
Albatross Collection. 2 examples.

51052 U.S.N.M. Hawaiian Islands.
(1 example. Length 180 mm.)

58530 U.S.N.M. Honolulu. E. L. Berndt.
(3 examples. Length 105 to 123 mm.)

Pelor aurantiacum Schlegel, Fauna Japonica, Pois., pts. 2-4, p. 44, pl. 18, fig. 1, 1843 (type locality, Bay of Omura, Nagasaki). — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 151, 1860 (copied). — Jordan and Snyder, Annot. Zool. Japon., vol. 3, p. 100, 1901 (reference).

Inimicus aurantiacus Jordan and Starks, Proc. U. S. Nat. Mus., vol. 26, p. 160, 1904 (Hiroshima; Kobe).

Pelor tigrinum Richardson, Ichth. China and Japan, p. 212, 1846 (type locality, Canton).

14643. Tidore Island, south of Ternate. November 24, 1909. Length 139 mm.

22305. Tidore Island. November 29, 1909. Length 88 mm.

A1270. Ubi, Buru Island. December 9, 1909. Length 163 mm.

306174 U.S.N.M. New Guinea. Australian Museum. Length 128 mm.

306178 U.S.N.M. New Guinea. Australian Museum. Length 107 mm.

52462 U.S.N.M. Apia, Bureau of Fisheries. Length 37 to 88 mm. 4 examples. As Zebrasoma rostratum.

52507 U.S.N.M. Apia, Samoa, Bureau of Fisheries. Length 34 to 157 mm. 4 examples.

1574

Depth 3 1/5 to 3 3/4; head 2 2/3 to 2 7/8, width 1 1/8 to 1 1/5. Snout 2 1/2 in head from snout tip; eye 5 to 7 1/2, 2 to 3 in snout, 1 7/8 to 2 in interorbital; maxillary very oblique, reaches 1/2 to 3/5 to eye, expansion 1 1/8 to 1 1/4 times eye; broad bands of villiform teeth in jaws and patch on vomer; interorbital 3 2/5, deeply concave; deep, broad, transverse depression on head behind eyes, also large cavity before and below eye. Gill rakers 3 + 7, low, finely asperous tubercles, greatly lower than gill filaments which long as eye.

Skin smooth. Head with various skinny flaps about lower side of head, mandible and preopercle. Lateral line axial, each pore marked by 12 to 15 short,

well spaced flaps.

D. XVII, 7 or 6, third spine 1 4/5 to 2 in total head length, second ray 2 to 2 1/4; A. II, 9, seventh ray 2 1/4 to 2 3/5; caudal 1 1/5 to 1 2/5, convex behind; least depth of caudal peduncle 4 1/2 to 4 7/8; pectoral 1 1/10 to 1 1/8, rays I, 8 + 2; ventral rays I, 5, fin length 1 1/10 to 1 1/8 in total head.

Color generally pale or light brownish, sometimes nearly uniform cream white in alcohol. Usually greatly variegated, mottled or marbled with brown to very dark brown above, or only under surface of head and belly pale to whitish. Sometimes specimens with 4 transverse dark brown bands, often second much broader than others. Fins all more or less specked or mottled

with darker in variegated specimens. Sometimes scattered dark spots or blotches in whitish of lower surface of body. Caudal with broad dark or blackish brown submarginal band, one much narrower subbasal and another basal. Pectoral with 3 transverse dark bands. Edge of ventral brownish. Iris gray.

China, Korea, Japan. It differs chiefly in its wide interorbital, contains eye 2 to 2½ times; snout shorter than to equal to postocular length.

49504

U. S. N. M., No. 22557. Awa, Japan. Government of Japan. Length 250 mm. A pale, or light example, with ends of pectorals and caudal dark brown. Cat Iniimicus auranticacus.

U. S. N. M., No. 39964. Japan. R. Hitchcock. Length 21½ mm. Rather pale example, with some scattered dark dots.

U. S. N. M., No. 49458. Tokio. Oct. 1896. Albatross Collection. Length 190 to 200 mm. Three examples, quite variegated.

U. S. N. M., No. 51315. Kobe, Pettus. D. S. Jordan and J. O. Snyder. Length 100 mm. Dark specimen.

U. S. N. M., No. 51350. Enamichi. D. S. Jordan and J. O. Snyder. Length 139 mm. Very dark and contrasted.

U. S. N. M., No. 59715. Yamagawa. June 14. H. M. Smith. Length 168 to 175 mm. Two examples. Very dark, with slight markings and skin quite pustulate.

U. S. N. M., No. 71780. Hanao, Japan. Albatross Collection. Length 193 mm. Dark example.

U. S. N. M., No. 71781. Misaki. Albatross Collection. Length 260 mm. Dark example, with large whitish area on top of head, muzzle, preorbital, opercle and hind part of tail.

U. S. N. M., No. 71982. Tokyo market. Bureau of Fisheries. Length 234 to 258 mm. One uniformly pale, 2 contrasted brown and one very dark or blackish brown.

U. S. N. M., No. 86404. China. A. Sowerby. Length 196 mm. Very dark and contrasted.

U. S. N. M., No. 49504. Tokyo. Albatross Collection. Length 116 mm. Brown, variegated with blackish.

1580

Dinimicus filamentosus (Cuvier)

Pelor filamentosum Cuvier, Hist. Nat. Poiss., vol. 4, p. 427, p. 94, 1829 (type locality, Mauritius) — Swainson, Nat. Hist. Animals, vol. 2, p. 267, 1839 (reference).

— Lesson, Voy. Coquille, Zool., vol. 2, p. 206, pl. 21, fig. 1, 1830.

— Valenciennes, Règne Animal, Cuvier, Ed. Ill., pl. 25, fig. 2, 1839. — Günther, Cat. Fish. Brit. Mus., vol. 2, p. 149, 1860 (Mauritius).

— Sauvage, Hist. Nat. Madagascar, Poiss., p. 517, 1891 (reference).

Depth 3 1/8; width 1 1/2. Head 2 3/5, snout 2 in head from snout tip; eye 5 1/4, 2 3/4 in snout, 1 1/2 in interorbital; maxillary apparently reaches expansion of orbit eye, half way in snout, length 2 1/8 in head from snout tip; interorbital 3 1/2.

D. XV, 8, second spine 2 1/8 in total head length, first ray 2; A. III, 7, fifth ray 3 1/3; caudal 1 3/5, convex behind; depth of caudal peduncle 3; pectoral 1, rays 10 — II, 2 uppermost end in free filaments second of which 2 in head; ventral rays I, 5.

Gray, marbled with brown blotches and white dots. Small black and white spots on cranium and opercle, varied with brown on head. Small brown and white dots on palate and tongue. Rayed vertical fins broadly bordered

blackish, caudal whitish subbasally. Pectoral exteriorly mottled and blotched like body, with 3 dark parallel bars basally and broad margin; inner face of fin white with rose tinge with 3 large black basal blotches and border of fin with numerous black spots all around. Ventral dark.
(Cuvier.)

In auctionis.